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TECHNOLOGY AND STRUCTURAL UNEMPLOYMENT:

REEMPLOYING DISPLACED ADULTS

CONGRESS OF THE UNITED STATES
Office of Technology Assessment
Washington, D.C. 20510

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Foreword

The problems of displaced adults have received increasing attention in the 1980s, as social, technological, and economic changes have changed the lifestyles of millions of Americans. Displaced adults are workers who have lost jobs through no fault of their own, or homemakers who have lost their major source of financial support.

In October 1983 OTA was asked by the Senate Committee on Finance and the Senate Committee on Labor and Human Resources to assess the reasons and outlook for adult displacement, to evaluate the performance of existing programs to serve displaced adults, and to identify options to improve service. In June 1984, the House Committee on Small Business asked OTA to include in the study an examination of trends in international trade and their effects on worker displacement.

Worker displacement will continue to be an important issue for the remainder of the decade and beyond, as the U.S. economy adapts to rapid changes in international competition, trade, and technology. While increasing automation and other industry adjustments to new competitive forces benefit the Nation as a whole, they do mean that millions of workers are displaced. The report shows that changes occurring in trade and technology mean that people whose work involves mainly routine manual and mental tasks, particularly in manufacturing, are vulnerable to displacement. Tasks, jobs, and processes that are highly dependent on semiskilled labor are those most likely to be moved offshore, lost to import penetration, or automated. As a result, less educated and less skilled workers are overrepresented among the displaced, and are unlikely to qualify for highly skilled technical, professional, or managerial positions which are less vulnerable to displacement.

This report concentrates on the problems of displaced blue-collar and nonprofessional white-collar workers. These workers are likely to face extended periods of unemployment, loss of health insurance and retirement benefits, and reemployment only in a new job with lower pay. For many semiskilled blue-collar workers the best route back to a good job is retraining, although even with retraining, initial wages are often lower than on the old jobs. Most displaced workers can benefit substantially from other reemployment services, such as job search assistance, counseling, and job development. Relocation assistance is appropriate for some. This report gives an overview of Federal programs that provide such services, and evaluates the extent to which both private and public programs are meeting the needs of displaced workers. It also includes an assessment of the extent to which adult educational systems and new educational technologies can help displaced workers and homemakers prepare for new jobs. In many cases, this preparation involves basic education, an area where technologies such as Computer Aided Instruction and interactive videodisks are especially promising.

OTA thanks the many people—advisory panel members, government officials, reviewers, and consultants—for their assistance. As with all OTA studies, the information, analyses, and findings of this report are solely those of OTA.

John H. Gibbons

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Chapter 1

Summary

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Chapter 1

Summary

OVERVIEW

In the past few years, millions of American workers have lost their jobs because of structural changes in the U.S. and world economies. Some of them—especially younger workers with skills in demand or the right educational background—have little trouble finding new jobs. Others—hundreds of thousands a year—remain out of work for many weeks or months, even for years. Many of the displaced are middle-aged unskilled or semiskilled manufacturing workers, with long and stable job histories. Given the pace of technological and structural economic change, they are being left behind.

These forces are also responsible for the loss of job opportunities for many younger workers. As U.S. firms automate, producing more goods with fewer people, or move production overseas, or fail to keep up with international rivals, they create fewer new manufacturing jobs. Indeed, **in some industries, it will be impossible even to maintain current levels of employment**. In the United States, one of the most open and attractive markets in the world, competition is forcing change at a rapid pace, recently accelerated by the strong dollar. Mechanisms for adjustment—such as job training programs and education for adults—have not kept up.

Over the 5 years from 1979 to 1984, 11.5 million American workers lost jobs because of plant shutdowns or relocations, rising productivity, or shrinking output. Of these 11.5 million workers, 5.1 million had held their former jobs for 3 years, and were counted as displaced by the U.S. Bureau of Labor Statistics (BLS). In 1984, 1.3 million of these displaced workers were still unemployed, joining the millions of others seeking work during a recovery that has not yet pushed the civilian unemployment rate below 7 percent. Another 730,000 of the displaced had dropped out of the labor force and were no longer counted as unemployed. **Of those who found new jobs, at least half took cuts in earnings**.

Although manufacturing now accounts for less than 20 percent of U.S. employment, **nearly half of all workers displaced from 1979 to 1984 worked in manufacturing industries, especially those hard hit by international competition** (such as steel, automobiles, industrial equipment, textiles, and apparel). The service jobs that the U.S. economy has created in the past few years are not equivalent to the old manufacturing jobs. In most, the pay is not as good (average hourly pay in the service sector was $7.52 in 1984, compared with $9.18 in manufacturing), and the better service jobs require skills or education that most displaced workers do not have.

There is broad consensus that displaced workers—and the cities and regions that have been hardest hit by displacement—should not have to bear the burdens of adjustment on their own. The Federal Government has supplemented its traditional employment programs with new assistance for displaced workers, mainly through Title III of the Job Training Partnership Act of 1982 (JTPA). Reports on the first 2 years of operation show that JTPA programs are helping displaced workers find new jobs. **However, it is likely that no more than 5 percent of eligible displaced workers are being served**.[1] Evidence is sparse on whether the program overall is providing much in the way of vocational skills training. Retraining in basic educational skills is mostly neglected, although one-fifth or more of all adult workers probably need improvement of their basic skills to get jobs with good possibilities for advancement. **To help**

---

[1] The eligible population in 1983 was roughly 3 million workers, based on the BLS survey which found 11.5 million people had lost jobs due to employment cutbacks from 1979 to 1983. Although BLS defines only 5.1 million of these people as displaced, holding the former job for 3 years is not a requirement for eligibility.

provide the skilled work force that American industries need to maintain competitiveness in the world economy, the program will have to reach many more displaced workers, and emphasize training—particularly basic skills training—more strongly.

One of the most effective ways to deliver services to displaced workers is through labor-management committees based in plants that are closing, and the best time to begin is before layoffs occur. The combination of early warning of large layoffs and early, in-plant response has worked in Canada for 20 years, providing effective reemployment help (not including retraining) to most victims of plant closings at modest cost to the government (about $108 per worker). A similar system in the United States probably would mean higher total JTPA spending, despite the low cost per worker, because of greatly increased participation. However, if participants are reemployed sooner, and at better jobs, than they otherwise would be, the benefits in higher tax revenues and lower costs of unemployment insurance could help offset program costs.

For many displaced workers, retraining is the best avenue to a good job with possibilities for advancement. In well-run projects, about 20 to 30 percent of the displaced workers become interested in retraining and have the background to take advantage of it. Whether displaced workers are getting enough chances at training for new skills and occupations is uncertain; JTPA reporting is minimal. However, the average of $768 to $895 spent per worker in the first years of the JTPA program would probably be inadequate to retrain many workers; programs that do emphasize a variety of services, including vocational skills training, commonly spend more than $2,000 per worker. Retraining is not for everyone. Many blue-collar workers who have drawn a paycheck for years simply do not want to go back to the classroom—especially if other jobs are available. Many others would need additional basic skills education before they could cope with technical training for better jobs. Still, strong emphasis on education and training for a substantial minority of people appears to be lacking.

Remedial education for the large number (perhaps 20 percent) of displaced workers lacking basic skills is a clear but unmet need. A few displaced worker projects have found ways to offer remedial education very successfully, but most do not attempt it. To get and hold well-paying jobs in an era of rapid technological change and intense global competition, all U.S. workers—not just displaced workers—need sound basic skills, including not only reading, writing, and quantitative reasoning, but communication skills and conceptual and problem-solving abilities. At the same time, these skills must be available if American industries are to compete with those of countries where labor is cheap and living standards are low relative to those of the industrialized countries.

Families and the public school system bear the main responsibility for providing good basic skills. However, as many studies have shown, too many of our young people emerge from public schools ill-equipped for work. Although it is much harder to repair the lack of basic skills later in life than to acquire them in the school years, some programs have demonstrated success. New educational technologies offer considerable promise in helping adults overcome basic skills deficiencies. Strong support from the Federal, State and local governments and private employers is needed to give these efforts a better chance and to develop or adapt educational software for adults.

Given the incentives leading U.S. firms to invest overseas and take advantage of cheap labor, or to use less labor at home, displacement is bound to continue. **Manufacturing jobs—especially production jobs—will continue to decline as a fraction of total employment; they are likely to continue to decline in absolute numbers as well. Within manufacturing, the most vulnerable jobs are those of unskilled and semiskilled production workers**. These jobs are not only the easiest to automate, they are also the easiest to move overseas. In all sectors of the economy, service as well as manufacturing, manual labor and routine mental tasks are vulnerable to computer-based technology. Through the rest of the century, pressures for adjustment will hit hardest at people holding these jobs.

Another group of displaced people, with especially difficult problems of finding adequate jobs, is displaced homemakers. These are women whose main job has been home and family, but who must now support themselves because of divorce, widowhood, disability or long-term unemployment of their spouse, or loss of eligibility for public assistance. Like workers displaced from factories and offices, they have lost their major source of income and face painful readjustment problems. **The number of displaced homemakers facing serious employment problems is in the millions, and is growing**. Federal assistance to displaced homemakers has been meager in the past, but recently was substantially increased in the Carl D. Perkins Vocational Education Act of 1984. Yet support for the programs serving this group is still small in relation to their numbers. **Barriers to employment are higher for displaced homemakers than for mainstream displaced workers, because many have little experience in a paid job**. Barriers to training are also high because most of these women have no unemployment insurance or other income cushion to see them through training.

To meet the challenge of living with global competition while enhancing the quality of its citizens' lives, the United States will have to move on many fronts to upgrade the skills of its work force and to make the best use of the abilities of its people. This includes giving all Americans a sound basic education; giving adult workers the opportunity to retrain later in life, in classrooms or in the workplace; designing jobs and organizing work to take best advantage of the skills people have or can acquire; and ensuring high-quality reemployment and retraining services to workers who find themselves in the wrong place at the wrong time, and become displaced. Responsibility for the success of such efforts is not just that of the Federal Government, but of local and State governments as well, working in cooperation with employers and the private sector.

Policy options are discussed in chapter 2 of this report. These options include congressional actions that could facilitate more rapid response to displacement and quicker reemployment, enhancing both vocational and basic education and training in JTPA and other programs, improving delivery of assistance to displaced homemakers, adjusting JTPA reporting requirements to give more timely information on program spending and services offered, improving labor market and occupational information, emphasizing research on the effects of technological change on jobs, and enhancing the contribution of instructional technologies in adult education and training.

INTRODUCTION

The Senate Committee on Finance and the Senate Committee on Labor and Human Resources requested that the Office of Technology Assessment (OTA) undertake an assessment of the causes of and remedies for displacement. The committees requested that special attention be given to the role of technology as a cause of displacement, and that the assessment explore the potential of instructional technology for retraining workers who need new skills or basic education to find good new jobs. In addition, these committees asked that OTA assess the extent to which occupational forecasts made by the BLS incorporate and adjust for technological change. A subsequent request, made by the House Committee on Small Business, asked OTA to focus particularly on the role of trade in causing displacement, and to examine how trade affects employment in general. In response to these congressional interests, OTA undertook a study to answer the following general questions:

- How does technological change displace workers, and who is displaced by labor-saving machinery? What kinds of people and industries are most likely to be affected by labor-saving technologies?
- How do trade and offshore production affect employment in different sectors in the United States? What kinds of workers and industries are most likely to be adversely affected by trade and relocation of production to offshore sites?
- How do reemployment programs perform in finding new jobs for eligible workers? What kinds of services are offered, and how effective are different types of programs and services?
- To what extent do adult educational institutions serve the needs of displaced people or help adults prepare for job and career changes, and avoid displacement? What are the roles of government and the private sector in retraining and educating displaced adults?
- What contribution could new technologies for training and education make in helping people to develop new skills and overcome basic skills problems?

To address these questions, OTA investigated industries affected by either significant foreign competition or changing technologies, or both, to find out how these changes affected workers, numbers of job opportunities, and the quality of jobs in the industries. National displaced worker programs and individual projects, public and private, were examined to determine what kinds of workers are being assisted, what kind of assistance is given, and how well the assistance succeeded in finding new employment and minimizing the costs of displacement. The educational requirements of displaced adults were assessed, as were the abilities of existing adult education institutions and instructional technologies in the public and private sectors to help workers avoid displacement, by preventive training and by upgrading the skills of the work force. OTA examined the ability of the so-called high-technology manufacturing sectors to replace jobs lost in other sectors. Finally, OTA assessed the overall employment trends in the United States and their impact on the performance of displaced worker programs and projects.

The Senate Committee on Labor and Human Resources also requested that OTA, in addition to assessing worker displacement, assess the problems and needs of displaced homemakers. To satisfy this request, OTA analyzed data from the Bureau of the Census in order to estimate the number and characteristics of displaced homemakers and assessed the structure and performance of national programs and individual projects for displaced homemakers.

Specific policy options were identified which might improve the system of assistance for displaced workers, and help employed workers make job and career transitions. In addition, OTA identified some policy options that address occupational forecasting and research on the employment effects of government-sponsored research. Because the report focuses primarily on displacement, other kinds of policy, such as overall labor policy, industrial policy, trade policy, and macroeconomic policy were not addressed specifically. While trade, industrial adjustment, and macroeconomic performance do affect employment and displacement, policies in these areas have other consequences and objectives than affecting employment.

DISPLACED WORKERS: DEFINITION AND DESCRIPTION

Worker displacement is a continuing problem in a growing, dynamic economy. In the industrialized world, conditions of production and competition are constantly changing: new production technologies are developed, new products are made, and old products and techniques fall by the wayside. New competitors enter the field, forcing existing enterprises to adjust or go out of business. Increasingly, this competition is international. The number of countries whose products can hold their own in industrialized countries is growing. There is also a growing conviction that the pace of such change is accelerating: that the adjustments must be made more often, that the pressure to change before the competition changes is intensifying. Most experts agree that this dynamism is good for the economy as a whole. The processes of competition and change allow people to choose from a wider variety of goods and services, at lower cost, than would be possible in a static economy.

However, technological change and world economic interdependence mean that millions of American workers are displaced, and some must make forced work transitions several times during their lives. Automation, changing conditions of trade, offshore production, and changing consumption patterns have displaced millions of workers, and made it necessary for others to learn new skills, relocate, or change jobs.

Between January 1979 and January 1984, 11.5 million workers lost jobs due to plant closings or relocation, abolition of a position or a shift, or slack work. Of those, 5.1 million had had the job for at least 3 years, and were considered displaced according to a special survey conducted by the Census Bureau in January 1984 and analyzed by BLS. This definition underestimates the number of displaced workers, primarily because workers (such as younger workers and people who have just changed jobs) who have not held their former jobs for 3 years are not counted as displaced. However, it is inappropriate to count all 11.5 million workers who lost their jobs during the period as displaced, because some of the loss of jobs—particularly that due to "slack work"—probably was cyclical.

By January 1984, 1.3 million of the 5.1 million displaced workers were still unemployed; some 500,000 had been unemployed for more than 27 weeks. About 730,000 people had left the labor force, some by choice but many out of discouragement or by retiring earlier than they might have wished. During the entire 5-year period, nearly one-fourth of the 5.1 million displaced workers were without work for more than a year. Many of the 3.1 million workers who were reemployed had experienced real difficulties finding new jobs. During the 5 years, nearly one-third of those who found jobs and who reported their earnings had taken pay cuts of 20 percent or more, and over one-tenth of former full-time workers had taken part-time work.[2]

Displaced workers are typically white males of prime working age with a steady work history in a blue-collar job in the Midwest or Northeast. However, many other groups are represented. One-third of displaced workers are women; 12 percent are black; 18 percent are over 55. Forty percent of the full-time work force is female, 11 percent is black, and 12 percent is over 55. **Even though women are actually underrepresented in the population of displaced workers, and black people are represented in proportion to their share of the work force, these groups fared significantly worse than white men in regaining employment after being displaced.**

Less skilled and less educated workers are more likely to be displaced, and more likely to have trouble finding a new job. Among the 5.1 million workers displaced from 1979 to 1983, **the most overrepresented occupational group by far was machine operators, assemblers, and repairers,** who comprised 22 percent of the displaced workers but only about 7.5 percent of the work force. Less likely to be displaced and more likely to find replacement jobs were professionals; executive, administrative and managerial workers; technicians; salespeople; and service workers (figure 1-1).

The occupational group most at risk (machine operators, assemblers, and repairers) is concentrated in manufacturing, and indeed, **manufacturing workers experienced job losses far out of proportion to their numbers.** Nearly half the displaced workers were from manufacturing, although manufacturing employs

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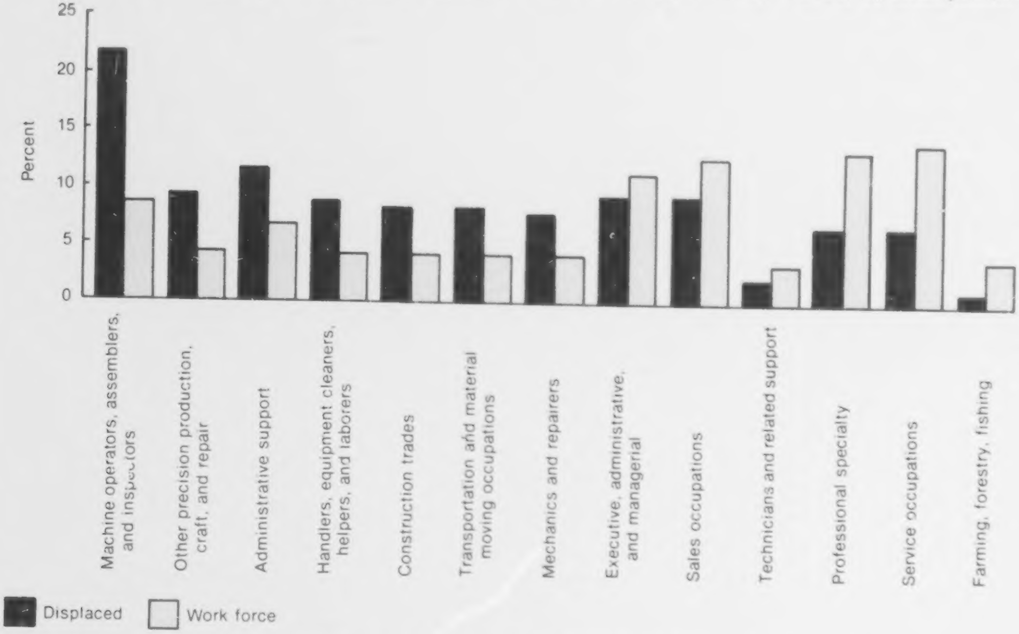
[2] Of the 3.1 million workers considered displaced according to the BLS definition who were reemployed by January 1984, 2 million reported earnings in both the old and the new jobs.

Figure 1-1.—Percentage of Displaced Workers and Percentage of Labor Force, by Occupation



SOURCE: U.S. Department of Labor, BLS, *Employment and Earnings*, January 1985, and Paul O. Flaim and Ellen Sehgal, "Displaced Workers of 1979-83: How Well Have They Fared?" *Monthly Labor Review*, June 1985, p. 7.

less than 20 percent of the work force (figure 1-2). The largest job losses occurred in nonelectrical machinery, automobiles, primary metals, and textiles and apparel. Together, these four sectors accounted for nearly 21 percent of all displaced workers, although they employ only about 6 percent of the work force.[3]

Geographically, **the hardest hit was the Great Lakes region—Michigan, Ohio, Indiana, Illinois, and Wisconsin.** This region accounted for 24 percent of the displaced, but only about 18 percent of the work force. The Middle Atlantic area (New York, New Jersey, and Pennsylvania) and the East South Central region (Mississippi, Alabama, Tennessee, and Kentucky) also had more than their share of displaced workers (figure 1-3). Since these regions also are centers of manufacturing, this regional concentration is not surprising.

Displaced workers are likely to experience prolonged unemployment. Of the 5.1 million workers displaced between January 1979 and January 1984, 43 percent were out of work for at least 27 weeks, and nearly one-fourth of them had periods of joblessness adding up to a year or more (figure 1-4). Many of these people are out of work long enough to exhaust unemployment insurance and family savings. Of the nearly 2.5 million manufacturing workers displaced, less than 60 percent had found jobs as of January 1984; the rest had either dropped out of the labor force or were unemployed.

The costs of displacement do not usually end with reemployment. Many displaced workers take jobs at lower pay and status than they had in their old jobs. **Of the workers who reported their earnings in the Census Bureau survey, 45 percent had taken a pay cut, and two-thirds of**

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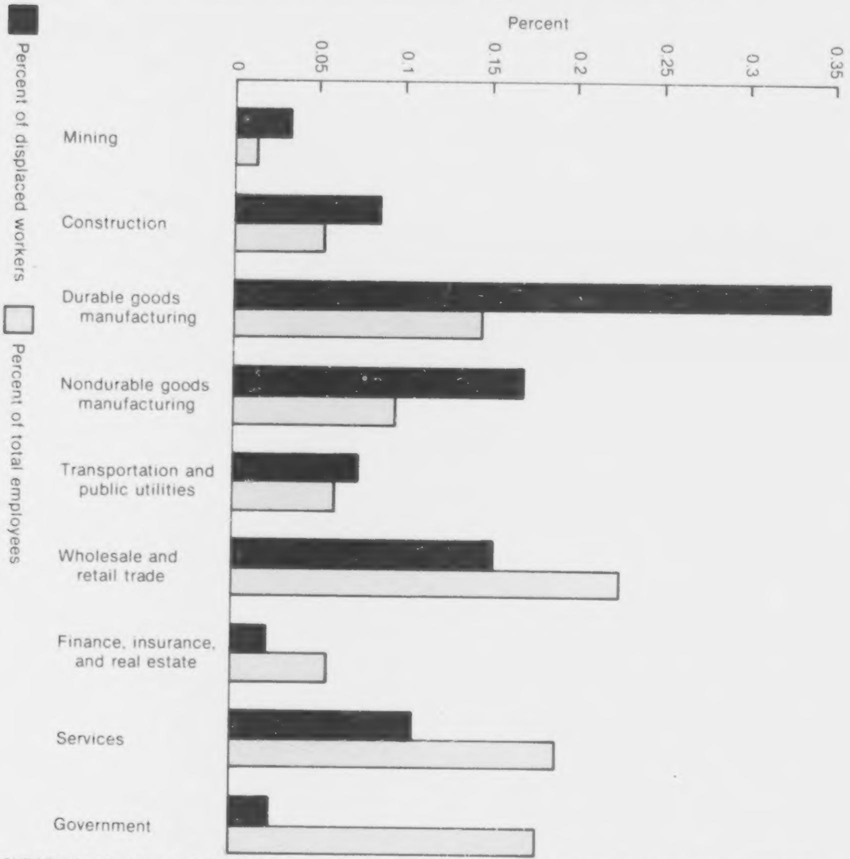
[3] Figures relating to percentages of the work force in different industries come from establishment data collected by States and compiled by the Bureau of Labor Statistics. This data comes from a survey of businesses with payrolls, and does not include people employed in agriculture or self-employed. The establishment data for 1984 pertained to 82 percent of the entire work force, or about 94 million people.

Figure 1-2.—Displacement by Industry, 1979 to 1984, and Percentage of Total Labor Force Accounted for by Each Industry, 1979

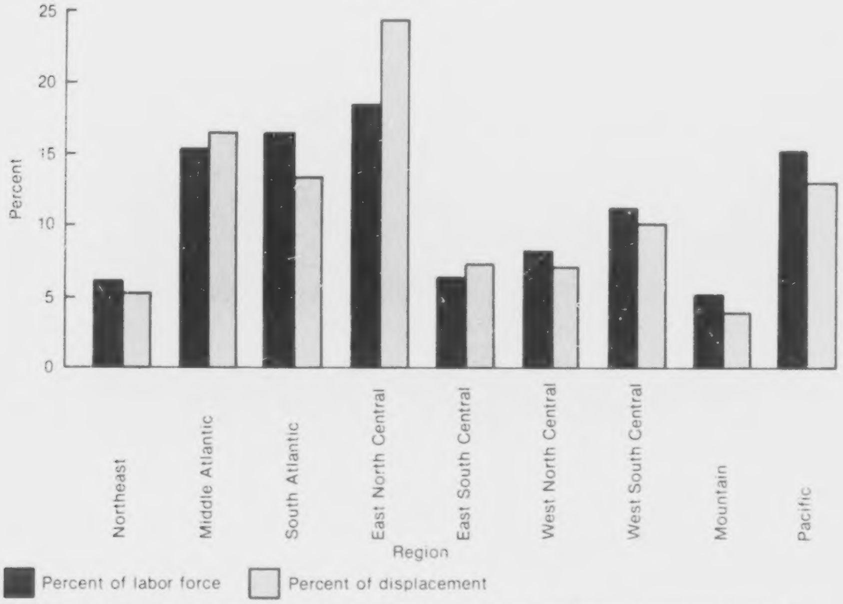


SOURCES: Paul O. Flaim and Ellen Sehgal, "Displaced Workers of 1979-83: How Well Have They Fared?" *Monthly Labor Review*, vol. 186, No. 6, June 1985, p. 5; and U.S. Department of Labor, Bureau of Labor Statistics, Supplement to *Employment and Earnings*, 1909-78 (Washington, DC: U.S. Government Printing Office, June 1984).

those were earning less than 80 percent of their former income. Even workers who find jobs that pay as well as their former jobs may still lose earnings over time, for they might have received raises and adjustments for inflation if they had been able to keep the old job. The Congressional Budget Office found that, on average, displaced workers experience long-term wage losses, and the greater the worker's seniority in the old job, the greater the loss. Moreover, **displaced workers lose benefits: health benefits usually stop, and pension benefits suffer.** The loss of health benefits is a matter of urgent concern to many displaced workers. A score of bills in the 98th Congress proposed funding mechanisms for health insurance for the unemployed, and three such bills have been introduced in the 99th Congress.

The economic stresses of displacement take a toll in mental and physical health. Prolonged unemployment, which most displaced workers suffer, typically brings with it increases in stress, anxiety, depression, physical ailments, alcoholism, and family strife. While these emotional costs are difficult to quantify, they are very real.

Figure 1-3.—Percentage of Labor Force and Percentage of Displaced Workers, by Region, 1984



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, unpublished data; and U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*, various issues.

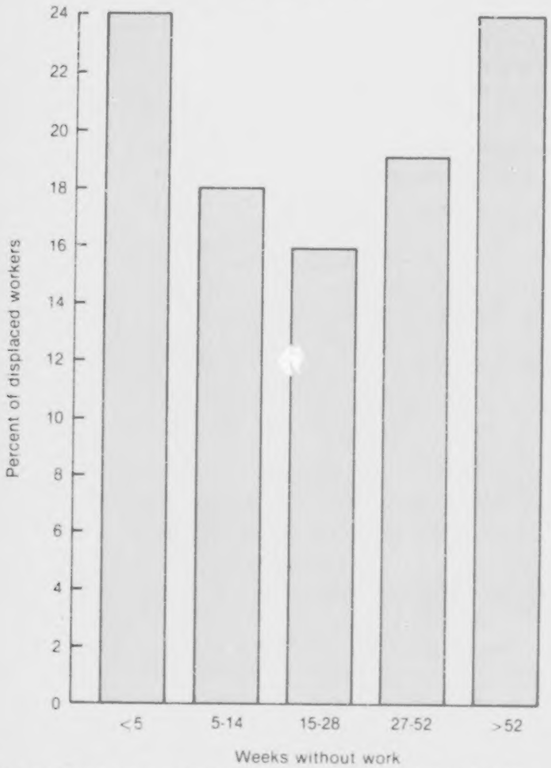
Displacement, Employment, and the U.S. Economy

Displacement can be devastating for communities and regions as well as individuals. The decline of manufacturing has hit certain States and regions much harder than others. Moreover, individual communities, and even whole regions, may remain depressed for years, as Appalachia did following the collapse of coal mining in the 1950s and 1960s. Large losses of employment have ripple effects in the community. A large layoff in one industry also affects workers in supplier industries and workers in local service establishments when laid-off workers reduce spending. For example, the unemployment rate of Michigan, in which thousands of workers were displaced from the automobile and related industries, was 10.4 percent in March 1985, still well above the national average nearly 2 years into an economic recovery (figure 1-5).

Of course, if the economy—particularly the local economy—is creating jobs at a healthy rate, the ripple effects of large employment losses dissipate more quickly, and displaced workers may have an easier time finding new jobs. However, the new jobs created may not be ones that the displaced workers can move into without major sacrifices of income, benefits and seniority, or without substantial education or training. It is unlikely that manufacturing employment—particularly production work—will exceed its 1979 peak in the long run (in the 1990s and beyond). Some observers, in assessing the effects of new technology alone, foresee a decline in manufacturing employment in absolute terms. **Displaced manufacturing workers will increasingly have to find new employment in service industries.**

The shift of employment to services is well established: in the United States, over 50 percent of employment has been in service sec-

Figure 1-4.—Displaced Workers Weeks Without Work, as of January 1984



SOURCE: Paul O. Flaim and Ellen Sehgal, "Displaced Workers of 1979-83: How Well Have They Fared?" *Monthly Labor Review*, June 1985, p. 12.

tors for over 50 years. By 1985, nearly three-quarters of all employees in the United States worked in service-producing sectors. **In the last decade and a half, nearly all the new jobs created in the United States have been in service-producing sectors: of the 23.3 million people added to nonagricultural payrolls between 1970 and 1984, 94 percent were in service production; only 1 percent were in manufacturing.** Since 1979, manufacturing employment has dropped by nearly 1.5 million employees.

The fastest growing sector is a category that includes hotels and other lodging places, personal services, business services, auto repair and service, motion pictures, amusement and recreation services, health services, and miscellaneous services. Like employment in other service-producing sectors, this sector includes many kinds of jobs, from highly paid, well-esteemed positions such as physician, accountant, and computer programmer to low-paid, less skilled positions such as nurse aide, clerk-typist, and cashier. **In general, employment in service-producing sectors is lower paid than in manufacturing: in 1984, average hourly wages for production and nonsupervisory workers in all the service-producing sectors was $7.52, compared to $9.18 in manufacturing. Service sectors have higher concentrations of jobs both in generally low-paying occupations and in management than manufacturing does.** For displaced workers, who are often unable to move into the more desirable jobs in service sectors without substantial education or retraining, moving to the service sector probably will mean loss of income and status.

Some workers, of course, will be able to shift from one manufacturing job to another, but **high-technology manufacturing sectors, such as computer and semiconductor manufacture, are unlikely to rescue many workers displaced from traditional manufacturing sectors.** While high-technology industries have created jobs faster than the economy as a whole, the employment base of these industries is small, so the number of jobs created is relatively modest. Depending on the definition of high technology chosen, only about 2.8 million to 9.7 million people worked in high-technology manufacturing sectors in 1984.[4] According to the most restrictive definition, which includes the sectors most people would identify as high-technology sectors, only 2.8 million people were employed in high-technology manufacturing industries

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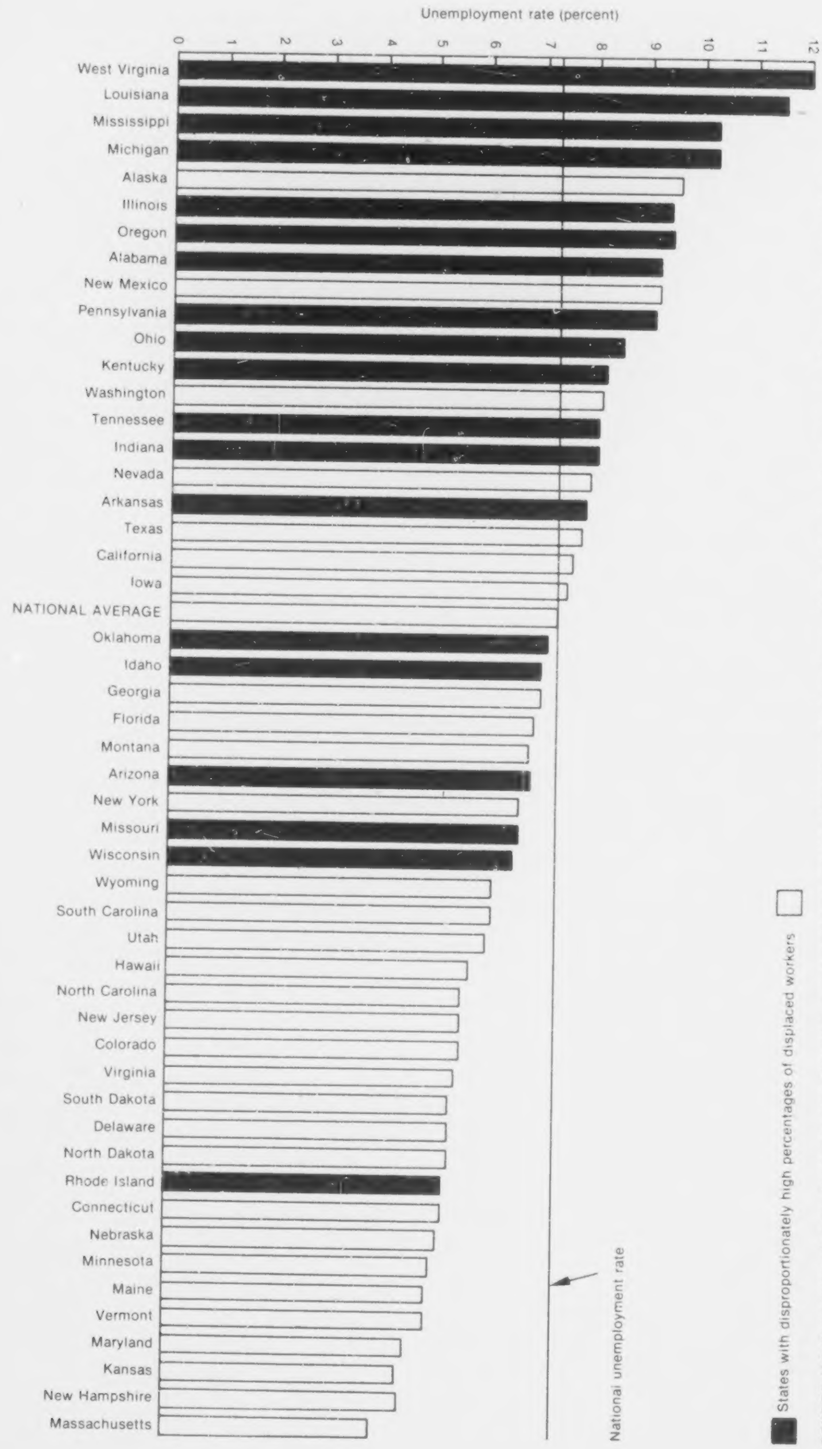
[4] The most restrictive definition of high-technology includes industries with a ratio of research and development expenditures to net sales at least twice the average of all industries. This definition includes sectors most people would identify as high-technology: drugs; office, computing, and accounting machines; communication equipment; electronic components and accessories; aircraft and parts; and guided missiles and space vehicles. The most liberal definition includes industries with a proportion of technology-oriented workers (engineers, life and physical scientists, mathematical specialists, engineering and science technicians, and computer specialists) at least 1.5 times the average for all industries. This definition includes many industries not commonly thought of as high-technology, such as heavy construction; paints and allied products; soaps, cleaners and toilet preparations; farm and garden machinery; and motor vehicles and equipment.

Figure 1-5.—State Unemployment Rates and Displacement, July 1985



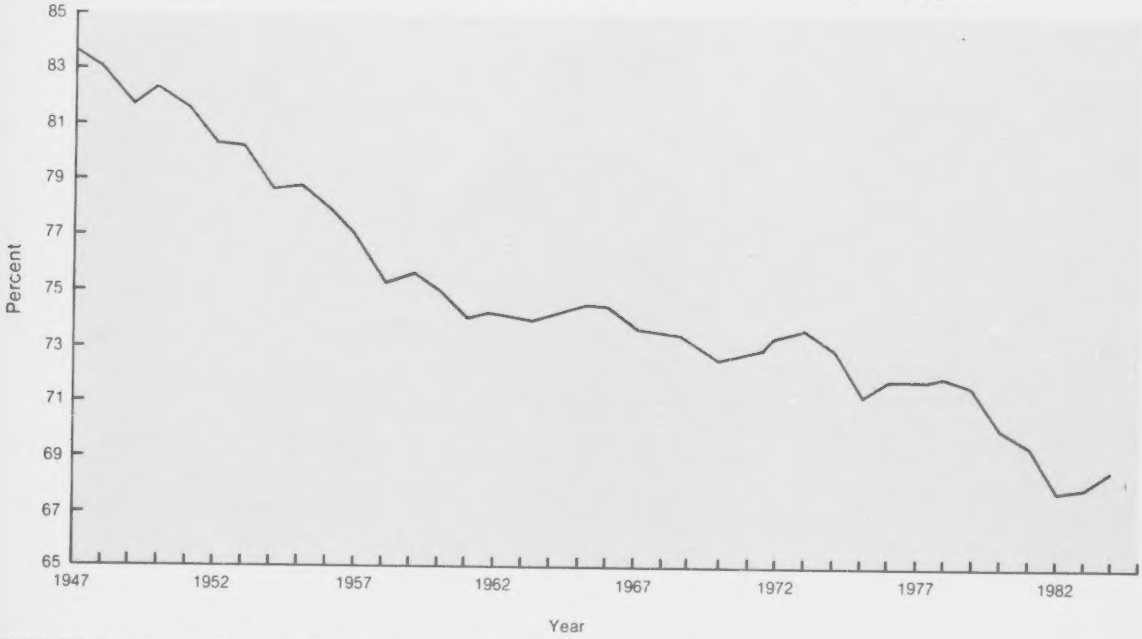
SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, unpublished data, and U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*, December 1984.

in 1984. Moreover, employment in many high-technology sectors increasingly is skewed toward managerial and professional occupations, which most displaced workers are unqualified for without a great deal of additional education. Production jobs have grown more slowly than total employment in many important high-technology sectors, and account for less than 48 percent of employment in high-technology manufacturing. In all manufacturing, production workers account for about 69 percent of employment (figures 1-6 and 1-7).

In addition, high-technology manufacturing workers are not invulnerable to the economic forces that lead to displacement. The persistent high value of the dollar in currency exchange markets has hurt high-technology manufacturers as well as traditional manufacturers. While a fall in the value of the dollar would help restore the competitiveness of some firms, the long duration of the dollar's imbalance has allowed foreign producers of high-technology as well as traditional goods to develop distribution and servicing networks throughout the world. Recapturing this lost market share will not be automatic or simple for U.S. producers. Altogether, it is unlikely that high-technology sectors will make up for lost employment in declining manufacturing industries in the foreseeable future.

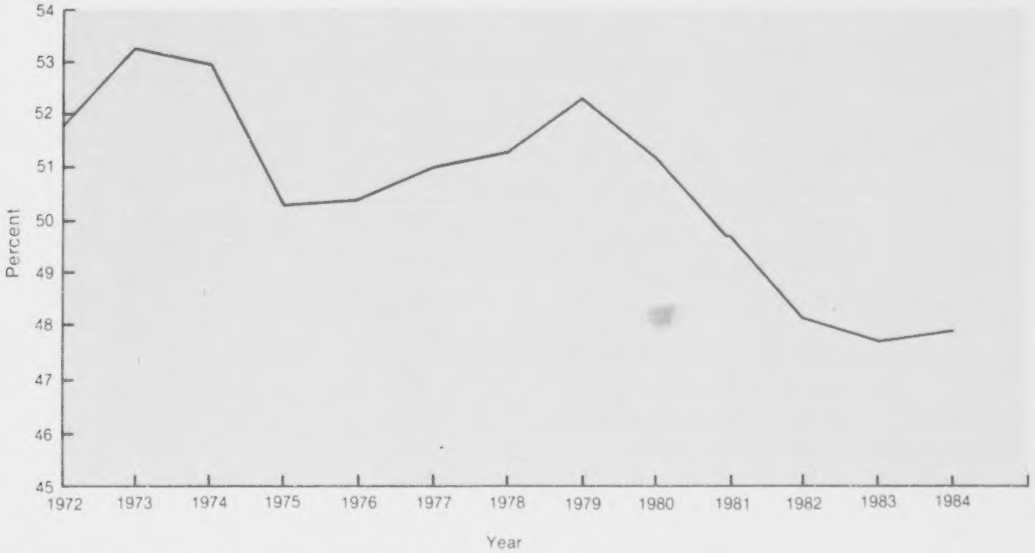
Small business cannot be counted on to make up all the job losses in large manufacturing firms. Although most evidence shows that small businesses at times create more jobs than large ones, the differential is uncertain and may be rather small over the long run. Conclusions that small businesses create far more than their share of jobs have been drawn from data on establishments, which are not necessarily the same as businesses; many small establishments are branches or subsidiaries of larger firms. In 1978-80, small **establishments** created jobs out of proportion to their share of total employment, but small **firms** (fewer than 100 employees) accounted for little more than would

Figure 1-6.—Production Workers as a Percentage of Manufacturing Employment



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*, various issues

Figure 1-7.—Production Workers as a Percentage of Employment in High-Technology Industries



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*, various issues

be expected. In that period, small firms had 36 percent of total employment and generated 39 percent of new jobs. During the 1980-82 recessions, however, very small firms (fewer than 20 employees) generated all the net new jobs in the economy; other sizes of business showed declines during this period. Whether small firms create more than their share of employment over the long term is unclear; the job creation record of small business appears highly variable.

Displaced Worker Programs

Displaced workers are not the only unemployed workers. According to the definition of displacement of the U.S. Department of Labor, displaced workers accounted for about 14 percent of unemployment in January 1984. Displaced workers have the advantage of established work histories and good work habits, and many have some transferable skills. As a result, they are usually more employable than disadvantaged workers or unemployed teenagers, many of whom lack acceptable work habits such as demonstrated willingness to show up on time and put in the requisite number of hours. In view of the greater problems of the disadvantaged and current constraints on public spending, some observers question whether the government should provide special services for displaced workers.

One justification for government programs for displaced workers is that these people bear a disproportionate share of the burden for having a dynamic, adaptable, and generally open economy. Displaced worker programs may be viewed as the price society pays for an open trade policy and for a labor market that permits private employers considerable latitude in hiring and firing—much more than in some other industrialized countries. Another justification is that displaced worker programs can also help society avoid other kinds of expenditure, such as unemployment insurance, food stamps, Medicaid, and welfare that arise during long stretches of unemployment. Little recent information is available on the extent to which displaced worker programs substitute for other kinds of social expenditures, but earlier studies, evaluating the displaced worker program of the 1960s, found that savings in welfare and other transfer payments were large enough to pay back the investment of public funds in 2 to 4 years.

Concern over displacement, and government programs designed to serve displaced workers, tend to wax with unemployment and wane as employment recovers. In 1962, concerned with rising unemployment rates and fearing that automation would aggravate unemployment, Congress provided special funding for displaced workers in the Manpower Development and Training Act (MDTA). Within 2 years, however, a prosperous economy and falling unemployment caused a shift in the emphasis of government employment and training programs, toward assistance for disadvantaged workers. The unemployment rate stayed low throughout the 1960s, partly due to the enormous fiscal stimulus of the Vietnam conflict and the Great Society programs. In the 1970s, unemployment rates again edged up. By the late 1970s, unemployment in a nonrecession economy had risen to 7 percent, and it hit a post-World War II high of 10.8 percent in December 1982, at the depth of the recession. Concern over displacement reemerged strongly.

Concern was translated into action with the 1982 Job Training Partnership Act (JTPA, Public Law 97-300). Title III of JTPA authorized services for displaced workers. In October 1983, State Title III programs to serve displaced workers were initiated. Federal funding of $223 million was provided for a startup period of 21 months.[5] JTPA Title III was the first Federal program designed to serve all groups of displaced workers since the beginning of MDTA, in the early 1960s.

Although unemployment remains high by the standards of the past four and a half decades, it has fallen from its peak in the 1981-82 recession. In mid-1985, civilian unemployment fluctuated between 7 and 7.5 percent for nearly a year, dipping to 7 percent in August. With the unemployment rate falling from recession highs, concern over displaced workers also lessened.

The economic recovery neither stopped nor even greatly reduced displacement. Displacement is an ongoing process, associated with technical and economic change, and the problems of displacement are not the same as those of general or cyclical unemployment. Plant closings and mass layoffs, major contributors to displacement, are continuing during the recovery. Moreover, plant closings and mass layoffs are by no means confined to mature industries such as steel, textiles, and automobiles. For example, in Santa Clara County (California's Silicon Valley) semiconductor industry employment fell by about 2,000 in a few months, from 51,000 in November 1984 to 49,000 in May 1985. In the semiconductor industry as a whole, employment fell by 9,600 between its peak in December 1984 and July 1985.

The need for services to displaced workers does not vanish during economic recovery and growth. There is a continuing need for displaced worker services in an economy that is changing as rapidly as that of the United States. The demand for services may be greater during recessions, when it is more difficult for displaced workers to find jobs on their own. Displacement itself may increase during recessions, as some marginally competitive firms close or permanently cut back production and employment. For example, employment losses in the textile industry have been heavy during recessions, and these losses have not been made up during recoveries. According to the BLS survey, over 1.2 million workers were displaced even in 1979, by most standards a healthy year economically.[6]

Performance of JTPA Title III

Judgments about the effectiveness of Title III should be made cautiously at this point. JTPA Title III is the first comprehensive program for displaced workers in nearly 20 years. Most States have had to spend some part of the first 2 years of Title III's existence organizing to serve displaced workers. Few projects have yet learned how to cope with differing economic circumstances and changing populations of displaced workers. As a result, some projects and States have spent their initial allotments of funds quite slowly, leaving $184.5 million in unspent, but probably mostly obligated, funds by June 1985.

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[5] This funding covered fiscal year 1983 and the transition year, a 9-month period from October 1983 to June 1984. JTPA is funded by program year, beginning in July, rather than in October as the Federal fiscal year does.

[6] This figure may be an understatement, because the workers were surveyed 5 years after job losses occurring in 1979; according to BLS, people tend to forget events of the more distant past, and probably underreported job losses in the earlier years of the 5-year period.

Title III served 96,100 workers in its first 9 months, and another 132,200 workers were newly enrolled in the full program year July 1984-June 1985. This is probably less than 5 percent of the eligible population. In 1983 over 3 million adult workers were displaced from their jobs, according to the BLS survey; most of these workers were eligible for Title III services.[7] So far, the number of workers served per year by Title III is about 3.5 times the number of workers served by the Industrial Adjustment Service (IAS) of Canada, while the U.S. work force is almost 10 times larger than Canada's.

IAS and Title III are different: the Title III program offers a broad range of services, including counseling, job search and placement assistance, vocational training, and education. The IAS program is focused on helping displaced workers find new jobs quickly, offering services immediately on notification of mass layoffs or plant closings. The IAS program does not itself provide vocational training or education, but can refer workers to Canada's extensive, free adult training program. However, IAS reaches many more workers, in relation to the size of the Canadian labor force than Title III does for the U.S. work force. If a program similar to the IAS existed in the United States, the number of people seeking services from JTPA Title III might well increase.

So far, in a number of respects, the Title III program seems to be working in accordance with major emphases in the law. The Federal role is minor, and States are in control of the program. The influence of the private sector is strong, particularly in the emphasis on placement, low costs, and marketing the program to potential employers. The act's limits on administrative and support services have been satisfied.

Whether Title III is an effective and sufficient response to the problem of worker displacement is questionable. One important question is whether the heavy emphasis on placement may divert attention and resources away from training. The limited information available on program spending indicates that vocational skills training in Title III programs is probably sparse. Generally, the majority of displaced workers are much more interested in returning to work than in training or education, although a significant minority of the people may become interested in training opportunities. While retraining for strictly "high-technology" skills and occupations may have been overemphasized in the past, training is still a very important component of well-run displaced worker programs. For many displaced workers, training is the best route back to a job with reasonable opportunities for advancement. This is particularly true for unskilled or semiskilled manufacturing production workers, whose former jobs were based largely on routine manual and mental skills. Many of these people need substantial retraining or education to get good jobs in the service-producing sectors, where most new jobs are being created.

In well-run programs such as the Downriver Community Conference in Wyandotte, Michigan, and the reemployment program at the former Ford assembly plant in Milpitas, California, a substantial minority of workers—20 to 35 percent—are likely to choose and benefit from vocational skills training. It should be emphasized that these percentages would be much lower without these programs' strong commitment to counseling and encouraging workers who are qualified to consider training.

A substantial barrier to retraining for displaced workers who are interested and qualified is that few adults can undertake it without income support. Basic unemployment insurance (UI) benefits, lasting 26 weeks, are

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[7] The eligible population in 1983 was roughly 3 million workers, based on the BLS survey which found 11.5 million people had lost jobs due to employment cutbacks from 1979 to 1983. Although BLS defines only 5.1 million of these people as displaced, holding the former job for 3 years is not a requirement for eligibility in most States.

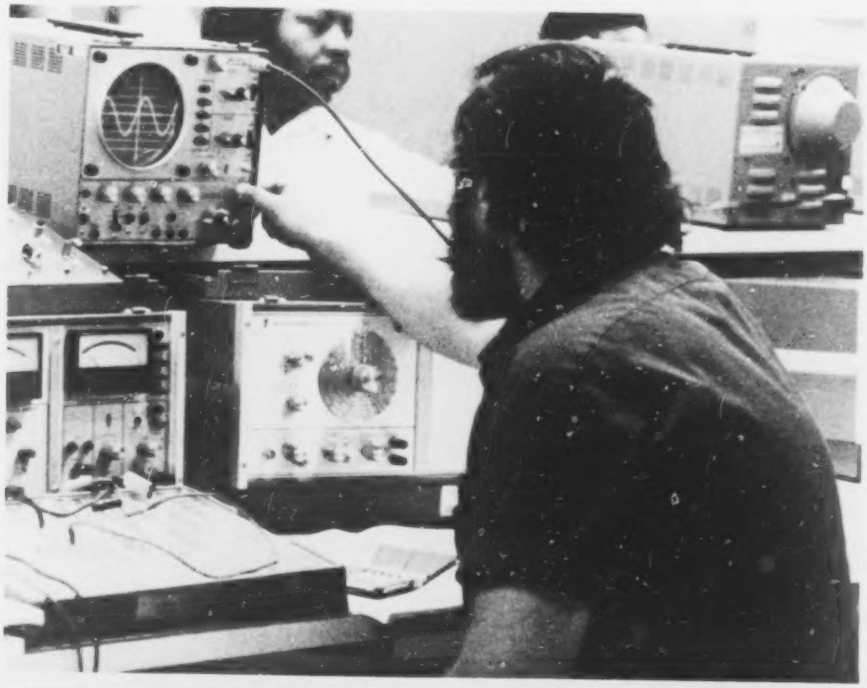

Photo credits: Downriver Community Conference

In well-run training programs, workers may be trained in both traditional and high-technology occupations *the main source of income* for most workers in training. Some training institutions and programs have adapted effective courses to fit this constraint, but by no means all. Extensive training, without other sources of financial support than basic UI, is often infeasible.

Judging by available numbers on spending, emphasis on and commitment to training may not be characteristic of JTPA Title III projects. In the initial 9 months of Title III, spending per worker averaged $768 and in the following program year $895, far less than the approximately $3,000 spent on each worker at the Ford Milpitas plant, where training—usually the most expensive service offered in any displaced worker project—was emphasized heavily. However, information on Title III program spending and services are both too limited and too out-of-date to judge the effectiveness and appropriateness of the program's training component.

Another concern is the low priority most State Title III programs give to remedial or brush-up education for displaced workers, even though displaced workers who lack good basic skills will increasingly be forced to take low-wage jobs. A substantial proportion of U.S. workers are poorly equipped to learn new job skills, except for relatively elementary ones, because they have deficiencies in basic education, or use only a narrow range of job skills that do not transfer easily to different occupations.

While estimates of adult functional illiteracy are both outdated and misleading, it is clear that **large numbers of adults lack adequate skills in reading, writing, mathematics, problem-solving, and communication. These people will find it increasingly difficult to compete successfully for good new jobs once displaced, or to qualify for occupational skills training.** Many people require remedial education before they can benefit from other kinds of training.

Lack of basic skills in the work force is a problem for U.S. businesses as well as for individuals. The lack may manifest itself in sluggish productivity growth, increased needs for supervision, and deficient product quality. These costs are difficult to quantify but are probably substantial. While private firms can and sometimes do provide basic education to employees, many employers feel, with some justification, that it is the job of the public school system, not business, to make sure that people enter the work force with adequate basic skills.

Retraining programs, which usually stress placement, often do not emphasize basic skills or remedial education. As a result, many people with basic skills problems receive no help at all from Title III projects. Few States have made remedial education an integral part of Title III services, although some with large numbers of non-English speaking workers have given it considerable attention. Most State directors of Title III programs see little need for providing remedial education, because they believe displaced workers have adequate basic skills, because remedial education is available elsewhere, or because of lack of interest on the part of the displaced workers. Project staff who work directly with displaced workers often see the matter differently; a number of projects have reported that one-fifth to one-third of their clients cannot read or figure at the sixth-grade level. Many displaced workers lack the basic skills which would qualify them for good new jobs or for training in skilled occupations. This is especially true of those who formerly held semiskilled or unskilled jobs—the same workers who are especially vulnerable to displacement. Displaced worker programs can offer very effective remedial education services, as some outstanding individual projects have shown.

Of course, overcoming basic skills deficiencies is the responsibility of the individual as well as that of society. In many areas, federally supported remedial education can be had at little cost except time and effort. However, demands for free remedial education are often greater than the supply and waiting lists for publicly funded remedial education classes exist in some areas. Even so, the majority of adult workers with basic skills deficiencies do not apply for remedial education, due to scheduling problems, inadequate motivation, or lack of self-confidence. To reach these people, more extensive outreach efforts are needed and, in many areas, additional service.

State directors do see a need for early warning of plant closures and large layoffs. This would allow States to begin offering assistance before workers are out of jobs. This service is permitted by JTPA but is difficult to provide without advance information about layoffs. Several States have put considerable effort into offering services and information to workers before they lose their jobs. These programs attempt to find out about impending layoffs by enlisting voluntary cooperation of companies. Typically, when the rapid response teams learn about a planned plant closing, they mobilize the local Employment Service (ES) office, the State education and training authorities, and community social service agencies to make a plant visit acquainting the soon-to-be-displaced workers with the options open to them. States vary in their ability to provide quality pre-layoff services. Some simply point the workers to services available from established agencies, but a few have developed an integrated set of services, including special efforts to find new jobs before the layoffs occur.

Some companies try to provide advance notice of large layoffs or closings voluntarily; others are required to do so in the bargaining agreements with their unions. Others provide little or no notice. Many workers receive only 2 weeks notice, or less, at the end of their jobs. Over the past decade, the Congress, at least 20 States, and several localities have considered legal mandates for advance notice, but there is little actual legislation. Three States—Massachusetts, Michigan, and Wisconsin—encourage voluntary advance notice, but only one State statute (Maine's) requires it.

Some workers will not take advantage of adjustment services early, but having them available is important to boost workers' morale and allow them to plan ahead. It is also important to offer training while workers are eligible for the maximum amount of unemployment insurance or other forms of income support. It must be noted, however, that early notice does little good if there is no program available offering reemployment and retraining services to the workers. Despite the efforts in some States to provide a rapid response to plant closures and layoffs, it appeared in mid-1985 that many States were still not adequately organized to offer adjustment services promptly. Delays of several months in delivery of Title III services were not uncommon, even though response times have improved since the Title III programs officially began in October 1983. Some projects have nonetheless done an excellent job. The Ford Milpitas project was an outstanding example of a prompt, positive response to plant closing. Important factors in its success were the 6-month advance notice required by the Ford-UAW bargaining agreement; early provision of an array of effective services; the excellent leadership provided by Ford staff and UAW members, who together ran the program; and the help provided by agencies of the State of California.

At the Federal level, advance notice legislation has been introduced in every Congress since 1974, but none has been adopted. A bill that reached the floor of the House in November 1985 was voted down by a close margin. Opposition to advance notice is based on arguments: 1) that the requirement burdens business, forcing companies to keep troubled establishments open longer than is economical; and 2) that advance notice can have perverse effects, undermining the morale of the work force and the confidence of suppliers, customers, and creditors. Proponents argue that businesses in European countries and Canada are able to comply with advance notice requirements; Canadian officials report that difficulties with early notification are not an issue. Experience also shows that worker morale can stay remarkably high after a plant closing announcement, so long as effective readjustment services (which Title III can make available) are offered promptly. However, advance notice might impose additional burdens on business and probably would increase demands—and spending—for readjustment services.

Another issue is whether the Title III program will receive reliable, sufficient funding.

Two years after the program officially began, Congress voted to cut Federal funding for the program by 55 percent, from $223 million in fiscal year 1985 to $100 million in fiscal year 1986. In proposing the reduction in early 1985, the Administration cited low demand for expensive classroom training, a lower-than-expected rate of spending, and a large carryover of unspent funds. Department of Labor (DOL) officials argued that the cut would not affect levels of service, because of the carryover funds (which amounted to $184.5 million on June 30, 1985, the end of the program year). The National Governors' Association, representing the States, strongly opposed the reduction, arguing that most States had fully obligated their Title III funds at the end of the program year; that spending is on a rising curve, as States get more experience with their newly established Title III programs; and that the cuts would force sharp reductions in services to displaced workers in many States.

The General Accounting Office presented evidence that, because of differences in rates of spending and carryover funds among States, 23 States would have less money for services to displaced workers in 1986 than was allocated to them in 1985. Most Title III funds are allocated among the States by a formula that is written in the law, so that changing the allocation would be difficult. Thus, the overall reduction in funding might mean that States which began an active displaced worker program early and spent most of their allocated funds would have to cut back services. Congress responded to this concern by directing the Secretary of Labor to give adversely affected States first priority for Title III discretionary funds, which are not allocated by formula but are granted at the discretion of the Secretary. What effect these funding changes will have on the stability, quality, and level of services to workers is not yet clear.

A problem that became evident throughout 1985, as Congress considered JTPA budget and appropriation proposals, is that information on Title III program spending and services is neither timely nor adequate. States are required to submit reports on their Title III programs only once a year, covering activities through the end of the program year, June 30, and due 45 days later. The reports usually are not complete until several weeks later. Thus, in the spring, summer, and early fall, when Congress is considering the budget for the following fiscal year, the most recent State reports on program activities are several months to more than a year out of date.

In April 1985, for example, when Congress considered the Administration's proposal to rescind Title III funds for fiscal year 1985, the State reports were nearly 10 months old. Congress did not act on the rescission. In mid-September, when congressional committees were marking up and voting on JTPA funding bills for fiscal year 1986, these State reports dating from June 1984 were still the latest available on Title III activities. More recent data, drawn from State reports for the program year ending June 30, 1985, became available only in the last few weeks before Congress took final action on JTPA funding. The infrequency of the reports lessens their value for oversight of the program as well as for budget decisions.

The sparsity of data in State Title III reports is also a problem. The Labor Department requires that they record only the amount of Title III funds spent during the program year; numbers of workers served, numbers officially leaving the program, and numbers placed in jobs; and a few characteristics of the workers finishing their stay in the program, such as age, sex, race, and level of education. The reports do not record obligation of funds by the end of the program year, only spending; nor do they provide information on how many workers are receiving what kinds of services (e.g., vocational skills training in institutions, remedial education, relocation assistance, job search assistance, and on-the-job training).

Other Federal Programs

While JTPA Title III is the first comprehensive Federal program offering assistance to displaced workers in nearly two decades, other Federal programs and agencies also play a role. The most important are Trade Adjustment Assistance (TAA), providing compensation and adjustment services to workers displaced as a result of foreign competition, and the ES, the long-established job placement service open to every worker in the United States.

Trade Adjustment Assistance was established in 1962, but served very few workers until requirements for eligibility were liberalized in 1974. The number of workers served by TAA peaked in 1980, at 585,243. The program has been cut substantially since 1981, when Congress redefined and limited TAA income support payments. In 1984, 29,300 workers were served. Spending peaked at $1.6 billion in fiscal year 1980, and declined to approximately $56 million in fiscal year 1984.

In the past, TAA was criticized for providing mostly income supplements, with few real adjustment services. In the mid-1980s, the emphasis has shifted to training and helping eligible workers look for work in more promising areas and relocating. In 1984, 24,000 workers received income support payments, 6,538 entered training, and 2,382 were given relocation assistance.[8] Outlays for training in 1984 were $18.5 million, compared with $5.2 million in 1980.

For eligible workers, TAA provides some significant benefits which JTPA Title III does not. TAA income support payments can last as long as 18 months for workers in training, and relocation assistance is more generous than under JTPA. TAA support has made it possible for some workers to complete longer term training than they could otherwise have afforded, and encouraged some relocation out of depressed areas.

The status of TAA was uncertain as this report was completed (in December 1985). Up for reauthorization in 1985, TAA was temporarily extended by Congress through December 19. However, Congress adjourned for the year without completing action on a budget reconciliation bill that proposed a longer term reauthorization for TAA. Meanwhile, under the continuing resolution, TAA-eligible workers can continue to receive retraining and relocation assistance, but not income support, through the end of fiscal year 1986. Hence, authorization for TAA technically expired, but the 99th Congress was expected to give further consideration to the program in its second session. One major concern regarding TAA is that it is difficult, and possibly inequitable, to try to distinguish among displaced workers by cause of displacement and single out one group for special treatment. The Administration, arguing that Congress should allow the program to die, held that TAA is unnecessary because JTPA programs offer adequate services to all displaced workers, and because the Unemployment Insurance system provides income support to all unemployed workers. On the other hand, TAA may be warranted as the price of liberal trade policies that benefit society as a whole. Also, the program may help to ease protectionist sentiments among workers and industries affected by trade.

The ES system administers UI payments, often the only source of financial support unemployed displaced workers have. The national network of federally funded Employment Service (ES) offices provides free services such as placement or helping clients to learn job search skills. It generally serves a small segment of the labor market; when last surveyed, only about 5 percent of people looking for work reported they found jobs through their local ES office. Although ES offices can offer additional services such as skills assessment, job counseling, job development, and referral to suitable training, most do not have the resources to provide these services to any but a few clients. Title III projects often buy these services from the local ES office. To expand the services to all clients, the ES system would need additional resources.

Congress has shown a special interest in two of the services provided by the ES. First, JTPA, like previous employment and training laws, calls for the establishment of a computerized interstate job bank and job matching system. This goal is only partially fulfilled by the Interstate Job Bank, in operation since 1984. The bank's coverage is limited to hard-to-fill technical and professional jobs, and it is by no means fully automated; many offices send job orders to the bank by mail. An intermediate step providing improved labor exchange information would be to upgrade and automate intrastate job banks, so that information on job openings and applicants could be quickly available throughout each State. For States with compatible systems, electronic communication or networking would be a possible next step.

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[8] The degree of overlap in these figures is unknown.

Full automation of either the interstate or intrastate job banks would require upgrading many State systems, and this upgrading could require substantial outlays of funds. One estimate, made by a committee of the Interstate Conference of Employment Security Agencies, was at least $240 million in capital outlays spread over 5 years. This figure does not include software, personnel training, and transmission equipment; on the other hand, it does not reflect savings in maintenance and operation that can be expected from using a modern, efficient system. Thus, the cost of a fully computerized, on-line, interactive national job bank has not been estimated.

It is not certain that the expense of full computerization and extension of the Interstate Job Bank to cover lower paid, lower skill jobs would be justified, particularly since the interstate system would be useful only to workers willing to relocate. However, a system that could help displaced workers get jobs in distant locations might help encourage some displaced workers from communities where job prospects are poor to relocate. Moreover, improved, automated job banks might work more effectively, thus encouraging more employers to list jobs and more qualified workers to apply. Currently, there is no reliable information on the full costs and potential benefits of automating the Interstate Job Bank. Before launching into a full-scale effort to automate, a comprehensive analysis of such costs and benefits is needed. The analysis should include a comparison of a centralized national system with several ways of linking individual automated State systems.

JTPA also requires the Department of Labor to assist States in providing detailed information on local labor markets. The weakest element in local labor market information is data on occupations currently in demand. For many local labor markets, it is difficult to obtain this information. The Department of Labor has provided some assistance to States in this area, in connection with national occupational surveys, but many State ES systems do not have the expert staff and funds needed to analyze the information available through DOL surveys. With reductions in Federal funding over the last few years, some State ES offices have taken major cuts in research and analysis. The Administration opposes Federal assistance to States for labor market information programs not targeted for national purposes, and proposes to cut the small amount of funding currently available to States for local labor market planning information.

Non-Federal Programs

Some State programs and collective bargaining agreements also contain provisions to help displaced workers. In addition, many of these programs are set up to train active workers to avoid displacement. Retraining of active workers is not authorized under JTPA Title III. California has a program funded at $55 million per year for retraining both displaced workers, and active workers who are in danger of losing their jobs unless they are retrained. The California Employment Training Panel is paying, for example, for the retraining of tellers and clerical workers of a major bank, where workers might otherwise lose their jobs as the bank automates and closes branch offices.

Both General Motors and Ford have agreements with the United Auto Workers (UAW), providing that money be donated to a retraining fund on the basis of hours worked by union production employees. The Bell companies also have agreements with the Communications Workers of American to fund retraining of their employees. A major advantage some projects have found in using the private training funds is that they are available immediately. They can be used to start up services to workers promptly, without waiting until States or the U.S. Department of Labor provide JTPA funds—a process that often takes months.

Another strategy that some States and local governments have adopted is to assist firms threatened with failure to stay in business. This helps maintain not only jobs but the economic life of communities. While many enterprises cannot be saved without continuing subsidies, some plant closings are avoidable. Community or State assistance may help keep some businesses afloat when certain conditions are met. First, there must be enough time to devise and implement a strategy to improve the ability of firms to compete; often, this means a year or more. Second, there must be a reasonable likelihood of profitability once a strategy is implemented. Finally, both labor and management must be willing to make some sacrifices. Even if all these conditions are met, some jobs may be lost as firms become more efficient and raise productivity. However, successful community and State assistance to troubled firms can preserve some employment which would be lost if the businesses failed.

Foreign Programs

Labor policies to avoid displacement, to assist workers who are displaced, and to offer retraining to adult workers have generally been less active in the United States than in some other industrial democracies. Most European countries and Canada have programs designed to deal with displacement. Even in Japan, where the active government role is small, social and business customs often provide a high degree of security for some of the work force (primarily males). Many of these foreign programs are considered successful, but probably would not transfer well to the United States. However, elements of them can be instructive.

Sweden's adult training programs and employment services are generally considered effective at finding jobs for people and, when there are few jobs to be had, at providing adults with excellent opportunities to acquire new skills. This effectiveness stems partly from the involvement of business and labor in determining what kinds of training are needed. Laid-off Swedish workers who cannot find work usually enter training, which gives them new skills and may enable them to get new jobs. This also keeps the unemployment rate low, since workers in training are not considered unemployed. To the Swedes, paying income support for people in training is preferable to paying unemployment insurance, and it upgrades the work force. For people who do not require training, individualized job-hunting services are provided. Advance notice of plant closings allows rapid response to avoid long layoffs.

The Swedish system of dealing with displacement has many elements that would be impractical in the United States. It is extremely expensive—Sweden's labor programs account for 2 to 3 percent of its gross national product (GNP)—and rely heavily on subsidies to industries to keep people employed. Its main beneficiaries are employed workers, while new entrants to the labor market do not enjoy the same access to services. The system also may tend to discourage worker mobility, and relies on immigrant guestworkers to take the less secure jobs. While Swedish labor policies have kept the unemployment rate low—less than 3.5 percent even during the recent recession and 3.3 percent in 1984—the Swedish economy is not without troubles. Inflation in Sweden has been higher than in the United States for over a decade; personal taxes, too, are higher in Sweden. These drawbacks, however, are not necessarily a result of specific Swedish labor policies and some elements of the Swedish system—effective worker training, early notification of layoffs and rapid response, and labor-management involvement in determining training needs—might be adaptable to U.S. conditions.

Canada is another source of useful examples. At a modest cost to the taxpayer, Canada's IAS (formerly the Manpower Consultative Service) gives effective reemployment service (not including retraining) to workers displaced by plant closings or large layoffs. Promptly after learning that a layoff is planned, IAS offers to help establish a labor-management adjustment committee whose job is to place the laid-off workers as soon as possible—often before the layoff occurs.

With a small field staff of 66, and a budget of $8 million, the IAS provided several kinds of employment services for about 120,000 workers in fiscal year 1982-83.[9] Some 36,000 of these workers were displaced in plant closings or mass layoffs and received plant-based adjustment services at a cost of $6.1 million ($171 per worker), of which the government contributed $3.9 million ($108 per worker). Over the years (except during deep recession) the labor-management committees formed with IAS's help have found jobs for about two-thirds of all the workers involved in the layoffs, usually within a year or less.[10] IAS offers its services in all cases of layoffs involving more than 50 people, and will step in where smaller numbers of people are involved if asked.[11] If the offer is accepted, which is nearly always the case, IAS provides an experienced, independent chairman (usually a retired businessman) to help the committees get established and do their work. The IAS role is strictly facilitation; the effort at the plant level is by labor and management, not by labor, management, and government.

The major thrust of the IAS program is reemployment. The committees provide no training, although they may refer people who desire training to one of the institutions participating in Canada's extensive system of adult vocational education. IAS costs are modest, averaging $10,000 to $20,000 per plant served.

Adult vocational training in Canada is well-funded and heavily attended. The Canadian Government spent over $1 billion (over 1 percent of its budget) in the 1983-84 fiscal year on adult training, including income support for trainees.[12] Approximately 277,000 people enrolled in the national adult training program that year. People who are eligible for this training are adults referred by one of Canada's publicly funded Employment Centres or the IAS. Employed people can take advantage of Canadian job training too, although higher priority in some programs is given to training for the unemployed.

Income support for unemployed or partially employed trainees in Canada can be extended for up to 2 years. This income support is one reason that many Canadian workers are able to take much more extensive training than people in JTPA-sponsored training; the average length of stay in Title III projects for those who take classroom training is currently about 22 weeks, some of it spent in activities other than training (e.g., testing, assessment, counseling, and job search). About 20 percent of the people enrolled in Canadian adult training in 1983-84 were in remedial education. Training in basic educational skills, less emphasized in the United States than in Canada, is probably needed to about the same extent in both countries. The Canadian Government also emphasizes training in "critical skills" occupations—those considered important to the national economy and in which shortages are anticipated. Although some of these critical skills occupations are high-technology—robotics technicians and computer hardware specialists—many are not, such as machinists, tool and die makers, welders, offshore drillers and derrick workers, millwrights, and chefs. It is not clear whether the emphasis on critical skills is very effective. It is difficult to identify what skills or occupations might be in demand, even in the short run.

While Canadian vocational training is extensive, it is probably more effective in helping trainees to get better paying, more highly skilled jobs rather than in helping to combat unemployment. The Canadian unemployment rate has been higher than that of the United States for more than a decade; in 1984, the rate was still over 11 percent.

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[9] Services provided by the IAS, in addition to the placement assistance for victims of plant closings, include work-sharing and technical assistance to firms in temporary crisis; retraining assistance for workers in firms undergoing technological change; and training of skilled workers for new and expanding firms.

[10] The committees generally finish their work, and then dissolve, in about 1 year. Usually, followup studies are not done, so that there is little information about what became of workers who did not find jobs through the committees; presumably some find jobs on their own, some remain unemployed after the committees dissolve, some leave the labor force, and some may enter training.

[11] Workers who are part of closings or layoffs involving fewer than 50 people are eligible for Canadian unemployment insurance, vocational education and training, and the services of the Canadian employment service. IAS also offers services when fewer than 50 workers are involved, but advance notice is not required in these cases.

[12] There is no comparable figure for the United States. The United States has no program which offers free vocational education and income stipends to adults who have been referred to training by the Employment Service.

Elements of the Canadian system which could be useful in the United States are an IAS-like system, or some other flexible, quick, plant-based response to large layoffs; and the excellent access to vocational and remedial education offered to adults, along with income support to make extensive training possible.

Design and Performance of Displaced Worker Projects

Within the framework of JTPA, there is considerable room for different kinds of services and different ways of offering them. This flexibility is one of the strong points of the program, since different areas and different groups of workers have different needs which rigidly prescribed projects might not serve well. However, while it is important to tailor displaced worker programs to the appropriate workers, communities, and economic circumstances, there are some elements of program design that tend to make all projects more successful.

Projects that have active cooperation of labor and management as an integral part of reemployment efforts are more likely to be effective than projects without such support. Employers, particularly with the cooperation of labor, can make important contributions to displaced worker projects. At the Ford Milpitas auto assembly plant, for example, Ford gave the plant's industrial relations manager a free hand when the plant closing was announced to "do what was right." In this case, the right action meant personalized counseling on benefits and retirement, testing of every worker who wanted education or skills training courses, a great emphasis on and variety of vocational training, remedial education offered in the plant at convenient times for workers, a determined search for local job openings, and letting people take new jobs before the plant closed without loss of severance pay. These services began months before the plant closed and continued at the plant for 16 months after production ended, with a company-paid skeleton staff available to run the services. The Milpitas project cost between $5.6 and $7.2 million (depending on how the resources provided by Ford are valued), and served 1,997 workers at a cost of $2,800 to $3,600 each. In addition to company money, funding came from the State of California, JTPA Title III, a retraining fund provided as part of the Ford-UAW bargaining agreement, and TAA.

Photo credit: Downriver Community Conference

A worker learns word processing in a retraining program run by the Downriver Community Conference.

By almost any standards, the Milpitas effort was outstanding. Until the day the plant closed —6 months after the announcement—quality and productivity continued to rise. On the date that services officially ended (Sept. 1, 1984), 83 percent of those looking for work had found jobs: 1,460 people were employed. Five hundred had retired or were within a few months of retirement; 118 were still in training; and 308 people were unemployed.

While public funding and the health of the local California economy were important elements in this success, this should not minimize the role of prompt action based on labor-management cooperation that already existed at Milpitas. This was not always the case: labor-management relations were rocky through the 1970s in the plant. In 1979, a new plant manager took over, committed to the idea of employee involvement that Ford and the United Auto Workers had just written into their national contract. Employees were encouraged to solve problems cooperatively with management, and supervisors began to listen to shop floor workers' ideas on improving quality and productivity. By 1982, the Milpitas plant was at the top of the Ford assembly division for productivity and quality. While this effort was not sufficient to keep the Milpitas plant open in the face of intense world competition—the plant apparently closed because of the expense of transporting cars from the California plant to the rest of the Nation and because of general contraction of Ford—the foundation of good labor-management cooperation was a critical element in the success of the reemployment program at Milpitas.

Employers usually have networks in local business communities, which can be effective at finding out what firms are hiring and what occupations are in demand and at sponsoring or promoting former employees to other business people. Employers and labor-management teams are also likely to know the strengths and skills of their own workers and can be effective at recommending qualified workers for new jobs. Also, workers are more likely to take advantage of services offered by employers if they already have good relationships with management, as is often the case in plants with effective labor-management teams.

Another feature of projects that serve the spectrum of displaced workers well is a full range of services, from job search assistance to training. Projects that offer a broad range of services are likely to meet the needs of a diverse group of clients under different economic conditions, not just a single group of those easiest to serve. However, in differing economic circumstances, different services may need more emphasis. In prosperous times and areas, job search assistance may be effective for the majority of workers entering programs. In communities facing longer term economic decline, vigorous relocation efforts may be needed. Finally, during recessions or in areas where jobs are hard to find, more workers usually are interested in training for new occupations.

Adult Education in the United States

Most displaced workers, even if they have received a few months' notice of layoff, do not have the time or the resources to devote to formal, full-time educational programs; moreover, many are not interested. As a result, many institutions offering adult education often play a relatively minor role in displaced worker projects, with some notable exceptions. For example, many community colleges and vocational/technical schools are involved in displaced worker projects. However, adult education institutions could be more active in retraining and educating displaced workers, if some extra attention is given to designing programs specifically for displaced adults. Such programs can also be a major force in providing people with skills that will make them less vulnerable to displacement ("preventive training"), or prepare them for finding a good job more readily if they should be displaced.

Both basic and career-oriented adult education will need to adapt to significant changes in the demography of the work force in the next few decades. The U.S. work force is aging, reflecting the aging of the baby boom generation, now in its prime working years. By the year 2000, half the labor force will be middle aged (35 to 54), compared to only about 35 percent today. This demographic trend, together with changes in jobs brought about by changing technology, will mean that more older workers than in the past will periodically need to refresh basic educational skills and learn or upgrade job skills. Much of this upgrading is likely to happen on the job, but some will come through the formal system of adult education. Historically, however, older workers are significantly less likely than the young to seek adult education. **Educational institutions may need to make changes in program design, curricula, logistics, and outreach efforts to attract more older workers.**

Like older workers, less educated and unemployed people also tend to take little advantage of adult education. Part-time enrollments in adult education more than doubled between 1957 and 1984, and 60 percent of the students take courses for employment-related reasons.

However, participation rates are much higher among those who are employed and well educated than among those who are not. Participants are also much more likely to be in management, administration, and technical or professional occupations than lower level white- and blue-collar jobs.

The same pattern prevails among people who receive education at an employer's expense. Private business plays a crucial role in funding and delivering education and training to adults, providing probably more than half of all job-related education and formal training to adults through in-house courses or arrangements with outside institutions. The most likely recipients of such assistance, however, are white, well educated, and in higher level managerial, administrative, and professional jobs. Some private firms make adult education more accessible to blue-collar and lower level white-collar workers through employer-supported education programs. Recent collective bargaining agreements emphasize education and training more than in the past, and some firms conduct basic education programs for their workers. Additional education and training could be offered at low cost through partnerships of business and local educational institutions. Many high schools, if asked, will provide adult basic education at the worksite, a union hall, or other facilities convenient to workers. Community colleges are often willing to adjust course locations and times to fit the needs of adults and local labor markets as well. Some unions also have active education and training programs, which often entail partnerships with educational institutions.

Photo credit: UAW-Ford Employee Development and Training Program

A UAW-represented Ford employee gets one-on-one instruction in a Basic Skills Enhancement session at the Ford Dearborn Engine Plant. This feature of the UAW-Ford Employee Development and Training Program is designed for people with fundamental educational needs.

The Federal Government plays a substantial direct role in funding some kinds of adult education. Nearly half the costs of State and local remedial education programs are provided by the Federal Government, for example, and the Federal Government also picks up a substantial portion of publicly supported vocational education programs that are specifically targeted to adults. For most other continuing education programs, the Federal Government plays a minor direct role, compared to States and private business. The indirect role, however, can be large. The expenses private employers incur for adult education can be deducted from Federal taxes as normal business expenses, and individuals can deduct expenses for education directly related to their current jobs. The Federal Government is also the largest single provider of adult education and training, particularly in programs offered by the Department of Defense.

Another potential Federal role is in developing and adapting instructional technologies to adult education, sharing more of its own experience in training technologies with the private sector and educational institutions. Many new educational technologies—including television, videotape, videodisk, and computer-aided instruction (CAI)—can significantly improve the quality of adult education. Television and CAI can help overcome geographic and scheduling barriers to adult education, and some CAI programs have considerable potential for use as a supplement to instructors in adult basic and vocational education. Many of these technologies were initially federally funded. The Department of Defense, for example, was instrumental in the early development of computer-based instructional programs, interactive videodisk systems, and various simulators and emulators used in training.

There is evidence from several projects that well-designed CAI materials can help adults learn quickly and well. In some comparisons with conventional classroom instruction, CAI has been shown to cut instruction time by 25 percent or more, and adults in these CAI classes did somewhat better on tests than adults in the control groups. Interactive videodisk systems are highly promising for providing a wide variety of vocational skills training. Several factors, in addition to the new computer technologies, have contributed to the success of new educational technologies in both basic and vocational education programs. Many of the projects benefited from closer attention to project design, greater efforts to encourage participation, and more training of instructors (paid and volunteer) than is typical in most adult education projects. In CAI projects, the computer rarely stands alone; rather, it works best as a supplement to, rather than a replacement for, good instructors and volunteers.

CAUSES OF DISPLACEMENT

Workers are considered displaced when some permanent and structural change has occurred, either in the economy as a whole, in some sectors, or in their own firms. People who are unemployed as a result of cyclical changes in the economy are not generally considered displaced, although when cyclical downturns are deep and long lasting, as in the back-to-back recessions in the early 1980s, it can be difficult to distinguish cyclical from structural unemployment. The result, for the individual, is often exactly the same. For the typical displaced workers in the early 1980s—steelworkers and autoworkers—it mattered little whether their distress resulted from displacement or a cyclical downturn. Both unemployed steelworkers and autoworkers were told, during the early 1980s, that their jobs were probably gone; that it was time to make a major change.

The outcomes for these two groups of workers illustrate some of the difficulties in trying to identify who and how many people are displaced at any moment. Unemployed steelworkers, displaced from an industry where competitive problems date back two decades or more, are still suffering the consequences of displacement. Employment in the steel industry in 1985 is lower than it was during the depths of the 1981-82 recession; even optimistic observers expect steel employment to continue to fall.

Autoworkers, on the other hand, have been recalled in much greater numbers than many analysts expected. Employment in motor vehicles and equipment averaged 860,000 in 1984, below its peak of over 1 million workers in 1978. Since 1982, however, total employment in the industry has increased by nearly 168,000, with the number of production workers increasing by nearly 157,000.

Both industries have sacrificed technological leadership to Japan and other foreign competitors, and both have suffered from sharpened competition from imports. Wages in both the steel and automobile industries are above the average for manufacturing; in 1984, the average hourly earnings of production workers in steel was $12.99, and in autos $12.74, while the average for all manufacturing production workers was $9.18. Both industries have responded to competitive pressures by seeking trade protection and by modernizing and automating plants. Employment in both industries has contracted, although the contraction of steel employment is far more severe. In other words, both industries have experienced all the forces causing displacement and have reacted to them in nearly the full range of ways.

The long-term outlook for automobile employment is not yet clear. During most of the recovery from the 1981-82 recession, the auto industry was protected by a restrictive Voluntary Restraint Agreement (VRA) with Japan, which significantly limited the number of Japanese automobiles in the U.S. market. The VRA expired in March 1985, and since then Japanese imports, though still restrained by an edict of the Japanese Ministry of International Trade and Industry, increased dramatically, rising from about 1.85 million in 1984 to an annual rate of 2.9 million in June 1985. Increasing imports, without continued growth in overall demand for automobiles, will affect U.S. employment.

Also, the recovery of automobile employment has been boosted by the rebound in large car markets, helped along by falling petroleum prices and stable gasoline prices. This rebound apparently leveled off in early 1985. Lower oil prices could last for a few more years, but it will be a challenge for U.S. automakers to maintain their market share. Meanwhile, to remain competitive, the auto industry will continue to automate, which also reduces jobs.

As experience in both industries indicates, the causes of displacement are technological change and international competition. Both terms cover a variety of factors that cause displacement, including labor-saving innovations, offshore production and outward processing, import competition, and loss of export markets.

Firms which face intensified competition from foreign producers often respond by automating domestic production in an effort to lower costs and meet the competition. Even this may not save many jobs; in some industries, even highly automated systems are readily transportable to lower wage countries. Other responses include shifting into less threatened product lines, moving operations offshore, or, when these strategies fail, shrinking or going out of business. All of these responses can displace people. Whether such displacement is trade- or technology-related is often impossible to determine. Analyses that attempt to separate the employment effects of trade from those of changing technology or increased labor productivity often miss the critical links between foreign competition and changing technology.

Technological Change

The number of jobs available is the result of a variety of strategic choices, including choices of technology. Often, the choice is to replace human labor with technology, a factor that has helped double output per labor hour in the United States since World War II. At the same time, a growing population and rising affluence—thanks in part to the rising productivity made possible by the capital-for-labor shift—brought increasing demands for goods and services. The increasing demand, together with new products made possible by new technologies, were major factors in the growth of U.S. employment.

Labor-saving technology can have a job-destroying effect, but the drive for greater labor productivity can help maintain or increase the ability of U.S. firms to compete with foreign producers. However, greater labor productivity, by definition, means that fewer workers can produce equivalent output; unless demand for output rises faster than productivity, jobs will be lost. At the same time, without productivity increases, declining competitiveness may cause even more jobs to be lost. Changing production technology often saves some jobs at the expense of others.

Increasing productivity, in the face of slowly growing or level demand, has cost jobs in the textile, automobile, and other industries. While some sectors, such as computing and telecommunications equipment manufacture, can look forward to rapidly rising demand for products and probably increases in employment, many others are likely to lose employment as demand grows more slowly than productivity. Competition from products made abroad increases the need to boost productivity and intensifies the resulting downward pressure on employment in affected industries. Manufacturing industries, because they make a product that can be consumed far from its place of origin, are especially vulnerable to foreign competition. And indeed, as has been shown, half the loss of jobs due to displacement (as defined by the BLS) in 1979-83 were in manufacturing, which accounts for less than 20 percent of employment. The 1981-82 recession certainly was responsible for some of those job losses, and the high value of the dollar is the reason for some continuing losses. The combination of pressures from changing technology and trade mean that declines in overall manufacturing employment are unlikely to reverse and may continue.

Technological changes alter the nature of jobs as well as the level of employment. These effects are not simple and predictable, however. An important factor is that equipment and hardware alone do not govern the way jobs and work can be reorganized. When a new technology replaces human labor in performing some tasks, the remaining tasks can often be regrouped into new jobs in various ways, although the latitude on the part of managers and their technical advisors to redesign jobs has limits. In addition, all the options that do exist often are not apparent. The nature of the jobs may also vary depending on the organization of work throughout the enterprise; the options can range from a high degree of central management control, with narrow, rigidly defined jobs designed to minimize the potential for human error, to a more participatory style, with greater autonomy, variety, and responsibility built into workers' jobs. The range of decisions in redesigning organizations or jobs does have limits, being constrained by the technologies themselves, costs, and such factors as product design and volume, training and abilities of the work force, national policies on quality of worklife, and the politics of the workplace.

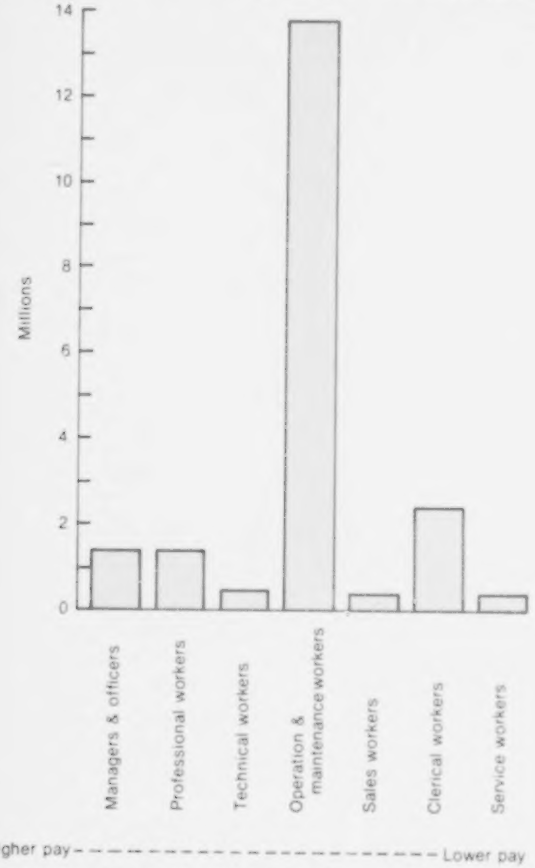
Sometimes, applications of new technology have led to de-skilling of individual jobs; for example, jobs such as those of some machinists and telephone operators have been de-skilled as jobs were redesigned to take advantage of computer-based technologies. Yet there are many examples—from offices to factory shop floors—where the adoption of new technologies has led to jobs with broader responsibilities, more skills, and requirements for a better understanding of the entire work process, including one's part in it.

Some of the skills needed to make use of advanced technologies are qualitatively different from the skills many displaced workers possess. Routine manual and mental skills, often learned through on-the-job experience, are vulnerable to technological displacement, while reading, basic math, and problem-solving abilities, combined with social skills, are more highly valued. When factories are automated, for example, the need for semiskilled and unskilled production workers often diminishes, while the need for skilled maintenance and repair people increases. In many cases, the workers selected to learn the new, more challenging maintenance jobs are the ones whose basic verbal, mathematical, and cognitive skills are best. Familiarity with computers and electronic instrumentation, the ability to troubleshoot, and the possession of a broad, conceptual model of complex processes are becoming more important. While this trend does not manifest itself in sudden shifts, it does mean that displaced workers whose former jobs consisted mostly of tasks requiring routine manual and mental skills will have increasing difficulty finding comparable new employment.

If the effect of current technological changes is to raise the proportion of more highly skilled jobs in the Nation's occupational mix, that effect will continue a long-standing trend. Throughout the 20th century, higher skilled occupations such as professional and technical workers, managers, and administrators have grown faster than some lower skilled occupations such as farmworkers, nonfarm laborers, and operatives. It would be misleading, however, to conclude that the economy is moving rapidly toward a future where highly skilled occupations predominate. Millions of lower skilled jobs have been created in fast-growing service industries, which accounted for nearly 95 percent of the growth in employment between 1970 and 1984. In general, service sectors have higher concentrations of both high- and low-skilled jobs than manufacturing (figures 1-8 and 1-9).

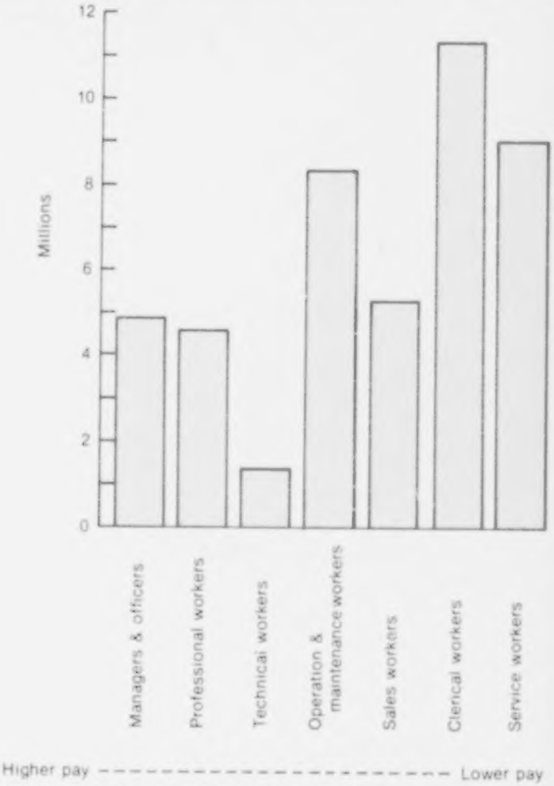
Many of the fastest growing and better paid service jobs require several years of vocational or postsecondary education, but other fast-growing jobs, such as sales work, do not. What is clear is that the number of lower skilled jobs in manufacturing is diminishing, and low-skilled and semiskilled manufacturing workers will increasingly be faced with taking other low-skilled jobs in service-producing sectors, which often pay less than manufacturing jobs, or with undertaking substantial periods of training or education to qualify for more skilled work in either manufacturing or services.

Figure 1-8.—Manufacturing Occupational Distribution



SOURCES: U.S. Department of Labor, *Occupational Employment in Mining, Construction, Finance, and Services* (Washington, DC: U.S. Government Printing Office, February 1984); U.S. Department of Labor, *Occupational Employment in Manufacturing Industries* (Washington, DC: U.S. Government Printing Office, September 1982); U.S. Department of Labor, *Occupational Employment in Transportation, Communications, Utilities, and Trade* (Washington, DC: U.S. Government Printing Office, December 1984); Earl F. Mellor, "Weekly Earnings in 1983: A Look at More Than 200 Occupations," *Monthly Labor Review*, January 1985.

Figure 1-9.—Occupational Distribution in Services



SOURCES: U.S. Department of Labor, *Occupational Employment in Mining, Construction, Finance, and Services* (Washington, DC: U.S. Government Printing Office, February 1984); U.S. Department of Labor, *Occupational Employment in Manufacturing Industries* (Washington, DC: U.S. Government Printing Office, September 1982); U.S. Department of Labor, *Occupational Employment in Transportation, Communications, Utilities, and Trade* (Washington, DC: U.S. Government Printing Office, December 1984); Earl F. Mellor, "Weekly Earnings in 1983: A Look at More Than 200 Occupations," *Monthly Labor Review*, January 1985.

International Competition

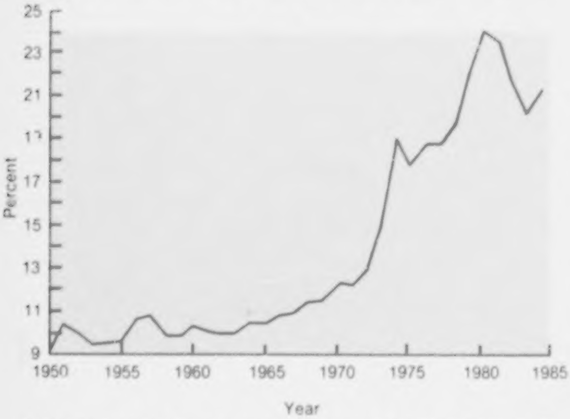
Immediately after World War II, relatively few countries were capable of producing many of the goods and services in demand in the United States and overseas, and this country was also more efficient at producing most of these things than any other nation. This has changed. While the United States is still the world's largest producer of goods and services, the number of nations that can produce sophisticated goods and services has proliferated, and their ability to compete with U.S. products has risen greatly. In part, this is due to the fact that other countries are challenging many U.S. sectors in terms of productivity and technology; in part, changes in competitiveness can be traced to higher U.S. production costs resulting from factors such as failure to modernize, inadequate attention to product quality, high wage rates and capital costs, and—a particular problem so far in the 1980s—the high value of the U.S. dollar relative to other currencies.

Over the past two decades, the importance of trade and international competition to the U.S. economy has increased significantly.

Trade (imports plus exports) has increased from less than 11 percent of GNP in 1965 to nearly 22 percent in 1985 (figure 1-10). In the 1960s, the United States consistently ran trade surpluses. These surpluses turned to deficits in the 1970s, and the deficits ballooned in the early 1980s. By 1984, the U.S. current account deficit was nearly $102 billion. The current account balance is the balance on imports and exports of goods and services *plus* the balance on unilateral transfers (including international transfers of funds such as gifts, pension payments, and government grants). The merchandise trade deficit, or exports of goods minus imports of goods, was over $107 billion. The United States has run surpluses in services trade for many years, but this surplus has been diminishing, having peaked at over $41 billion in 1981. In 1984, the huge merchandise trade deficit, plus an $11 billion deficit in unilateral transfers, swamped the services surplus of $17 billion. The rising value of the dollar in the 1980s is responsible for much of the deterioration in the trade accounts, but a number of sectors had lost competitiveness before this change. Recapturing the competitive edge, even for firms hurt primarily by currency fluctuations, will be difficult.

The trade balance is only one measure of change in international competition. Many U.S. firms have responded to intensified competition by moving production operations offshore, or by sending partially finished products to overseas plants for processing and then reimporting the processed products. Outward processing has become a much more important component of U.S. manufacturing firms' strategy, now accounting for nearly one-sixth of U.S. manufactured imports. Between 1969 and 1983, the value of items assembled abroad increased by nearly a factor of 12, or almost 20 percent per year. Outward processing is particularly significant in motor vehicles and parts, apparel, and several types of electrical equipment. The most important reason for the increase in outward processing is foreign competition, which has led U.S. producers to lower costs by seeking lower wage countries. This is true not just for the United States, which has had higher wages than the rest of the world throughout most of the post-World War II period. Japanese producers, too, have moved assembly operations to lower wage countries as wages in Japan increased. This does not necessarily imply that U.S. wages—or, for that matter, Japanese wages—should come down; it does mean, however, that there is little security in many American unskilled or semiskilled jobs in industries whose products can be readily traded internationally.

Figure 1-10.—Trade as a Percent of GNP, 1950-84



SOURCE: Council of Economic Advisers, *Economic Report of the President* transmitted to the Congress February 1985 (Washington, DC: U.S. Government Printing Office, 1985).

Very little can be done to reduce the incentives to import cheaper, foreign-made products, to prevent offshoring, or to avoid all employment losses in industries facing stiff competition from low-cost foreign products. **Trade protection, largely in the form of quotas, has been used to mitigate the pressure in some industries, but seldom prevents all job losses**. There are several reasons for this.

First, the General Agreement on Tariffs and Trade has decreased the importance of tariffs and forced participating nations to use new-style quantitative restrictions, such as orderly marketing arrangements and voluntary export restraints, to protect domestic industries. Because tariffs apply to imported goods independent of their origin, and the new quantitative restrictions are usually bilateral or multilateral, these quantitative restrictions often constitute very leaky protection. In some cases, producers in countries that do have agreements restricting exports to the United States simply route their products through countries with no restrictions. As a result, quantitative restrictions are often ineffective at stemming imports. Apparel imports, for example, multiplied more than 20 times (from $595 million to over $12 billion) between 1967 and 1984, with some quantitative restrictions in place.[13] During the same period, employment in the apparel industry fell from nearly 1.4 million workers to less than 1.2 million. The restrictions probably slowed losses of American apparel jobs overall. Nonetheless, there was a great deal of displacement in addition to the net job losses, as the industry shifted to lower wage areas within the United States.

Second, quantitative restrictions do not remove incentives for U.S. producers to move production to lower cost areas. U.S. producers can engage in outward processing without the imported items being subjected to quantitative restrictions. For example, between 1980 and 1983, when the U.S. automobile industry was protected by a voluntary restraint agreement with Japan, imports under the Tariff Schedule of the United States 807.00 (TSUS 807.00, one form of outward processing) nearly doubled, rising from $5.3 billion to $9.8 billion. While employment in the auto industry increased during the full period of the VRA—from 789,000 in 1980 to 860,000 in 1984—industry employment was substantially depressed in 1980, down from a peak of over 1 million in 1978.

While protection is ineffective in preventing all job loss, it may nonetheless be an important part of a strategy to lessen the impact of foreign competition on the U.S. work force. **Particularly if combined with industry efforts to phase out unprofitable lines of businesses over time or improve competitive ability, protection can stretch out the period of employment decline and help to avoid rapid, large job losses that might swamp local labor markets with displaced workers**. Moderate employment declines over periods of a few years can often be mitigated by attrition and early retirement programs, avoiding some or all of displacement. Moreover, phasing production out slowly can often give workers more time to find or train for new jobs. In addition, protection (or threats of it) may motivate some foreign producers to build production facilities in the United States in order to keep market share and avoid trade restrictions. The protection of the VRA, and proposals to renew such protection, probably are significant factors in the decisions of Toyota, Nissan, and Mazda to locate automobile assembly plants in the United States.

Manufacturing employment is particularly vulnerable to displacement resulting from increased international competition. Products can be made in one location and shipped to another, replacing labor in the consuming country. Exported services, on the other hand, are more likely to use labor in the country of consumption, since the production and consumption of the products (such as restaurant services, lodging, some banking and financial services, and some retail and wholesale trade) cannot be physically separated.[14] As a result, it is not surprising that manufacturing workers are disproportionately represented among the displaced.

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[13] Not all growth in imports was due to leaks; the quantitative restrictions permitted some growth in imports.

[14] International trade and competition in service industries are the subject of an ongoing OTA assessment, *International Competition in the Service Industries*.

DISPLACED HOMEMAKERS: PROGRAM STRUCTURE AND PERFORMANCE

Displaced homemakers are women whose principal occupation has been homemaking, and who have lost their main source of financial support.[15] **Displaced homemakers share problems of finding good jobs with other displaced workers, but the barriers they face are often greater because of their lack of experience**. Often, their existing skills are not transferable to good new jobs, and they may need retraining or education in order to find steady, well-paid work. Estimates of the number of displaced homemakers range from more than 2 million to about 4 million.

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[15] A few men may fit the definition of displaced homemakers, but most are women. This discussion is confined to female displaced homemakers.

Providing the first national estimates of the displaced homemaker population for more than a single year, OTA found a 28-percent increase in their numbers, from 1.7 million in 1975 to 2.2 million in 1983. These figures are conservative. Different definitions and different databases have produced estimates for single years that are more than twice as large. Definitions of displaced homemakers also vary from one State and Federal law to another, with little consistency in eligibility for program services.

For analytic and descriptive purposes in this report, displaced homemakers are defined as women who:

- are between the ages of 35 and 64; and are divorced, widowed, or separated; or
- are married but the husband is absent, seriously disabled, or long-term unemployed; or
- are losing public assistance income from sources such as Aid to Families with Dependent Children, when the youngest child reaches the age where dependent care ceases; and
- have had serious employment problems, including unemployment, working part time but preferring full time, working at pay below the minimum wage, or dropping out of the labor force from discouragement.

Much of the increase in the population of displaced homemakers since 1975 can be attributed to divorce, separation, or desertion. By 1983, nearly half (over 1 million) of displaced homemakers were in this category. Over 60 percent of displaced homemakers had children living at home. Their families were generally small; only about one-fifth of displaced homemakers lived in families of four or more. Even with small families, however, **many displaced homemakers live in or near poverty. In 1982-83, nearly half of them had family incomes below $10,000**. At least 30 percent of those in families of four or more were below the poverty level, compared with only 15 percent of all families.

By definition, displaced homemakers have trouble finding satisfactory jobs. Half of them were employed, but at pay below the minimum wage or in a part-time job when they wanted full-time employment. In 1975 (the most recent available occupational data), 42 percent were service workers, in jobs such as waitress, hotel maid, or nursing home aide. This compares to only 22 percent of all women in such occupations at that time. Displaced homemakers were underrepresented in clerical, professional, technical, and administrative jobs.

Government programs serving displaced homemakers are relatively new. The first publicly sponsored displaced homemaker program was in California in 1975, and the first Federal program came in the 1976 amendments to the Vocational Education Act. By not including displaced homemakers as a target group, as CETA did, **JTPA weakened Federal support for displaced homemaker programs. Stronger support came in 1984, in the Carl D. Perkins Vocational Education Act.** The act authorized spending of up to $84 million annually for services to single parents and homemakers, including displaced homemakers. For fiscal year 1985, $63 million in Federal Voc Ed grants is available for services to single parents and homemakers, including displaced homemakers.

What portion of the Voc Ed funding for services to single parents and homemakers will be devoted to displaced homemaker programs is not yet known. Moreover, there is some resistance in the vocational education establishment to the idea of setting aside funds for special groups such as single parents and homemakers. On the whole, however, it appears likely that Voc Ed support for displaced homemaker assistance will increase substantially, exceeding any Federal funding targeted to this group in the past.

Even with the increases, Voc Ed funding is still small in relation to the number of displaced homemakers. Moreover, although Voc Ed grants can be used to support a considerable range of services, the emphasis is on vocational training, not job placement. For many displaced homemakers, the choice of training is not feasible. Lacking either unemployment insurance or income from other family members to provide temporary or partial income support, they urgently need a job. The Job Training Partnership Act, another major Federal program that serves some displaced homemakers, is much more focused on placement of clients in jobs than the Voc Ed program. Also, it is potentially an additional important source of funding for programs serving this large and growing group of jobseekers who face serious barriers to employment. **Access to JTPA programs, as well as to Voc Ed programs, is important to displaced homemakers.**

JTPA funds were a relatively minor source of support for displaced homemaker projects in 1984-85. Barriers to serving these women with JTPA funds include the following: some displaced homemakers do not qualify for Title IIA programs serving the economically disadvantaged, often because their previous income, before they became displaced, was too high; despite exceptions to the low-income rules for Title IIA projects, not many service providers are making use of them; many States do not consider displaced homemakers eligible for Title III services, which have no income limits. Another problem is that displaced homemaker service providers often lack information about JTPA. In addition, local Private Industry Councils, which guide JTPA decisions, are often opposed to special services for this group.

Currently, several hundred displaced homemaker projects exist, probably serving more than 100,000 people annually, or at most about 5 percent of the population. According to project directors, the most effective programs include a comprehensive mix of services, including personal counseling and training in job search skills and actual job skills. The clients are a diverse group, however, including minority women, long-time welfare recipients, women from rural areas, older women, and widows. For some, services designed to meet their particular needs are appropriate.

Many displaced homemakers cannot take advantage of the educational and training opportunities open to them because of financial need. The law authorizes the use of Voc Ed funds for child care, transportation needs, and other support services for single parents and homemakers, and allows training stipends in cases of acute economic need. However, the funds have rarely been used for these purposes. Under JTPA, about 15 percent of funds can be used for supportive services, including such expenses as day care and transportation, and needs-based payments necessary for participation. So far, 10 to 11 percent of Title IIA funds and 6 to 7 percent of the Federal share of Title III funds have been used for these purposes. Considering the limited degree of participation in JTPA programs by displaced homemakers, it seems unlikely that they received much if any of this low level of spending for supportive services and training allowances. Federally assisted student loans are designed primarily for young people, and are less accessible to displaced homemakers as well as to adult displaced workers. Lack of income support is a significant handicap to displaced homemakers who could benefit from training, including those who need some remedial education to qualify for jobs or skills training.

Adequate information on programs serving displaced homemakers has never been collected. This includes information about elements of program success and failure, important to local project directors in designing effective services. The Perkins Act does not require much detailed or specific reporting on programs serving single parents and homemakers, nor does the Department of Education, which administers the act, have any such requirement. State officials are beginning to develop a consistent, national system of data collection including characteristics of clients served, services provided, outcomes, and followup results 1 year later.

POLICY ISSUES AND OPTIONS

Adjustment to structural economic change has been a major issue in the 1980s. In public debate, attention has focused on a broad range of policies that affect both the rate of structural change and the need for adjustments on the part of American business and workers. The debate encompasses alternative macroeconomic strategies designed to stimulate economic growth and employment, trade policies responding to major changes in U.S. trade balances and international trading practices, and proposed industrial policies that affect the conduct and performance of different sectors of the U.S. economy. Actions taken in these policy areas affect the need for worker adjustment, but have much broader implications for economic performance and industrial structure. This study focuses specifically on policies to facilitate worker adjustments or transitions between jobs and industries as those jobs and industries change.

In recent years, assistance to workers who have lost jobs due to structural changes in the economy has been debated at some length in Congress. Congressional actions on the issue include establishing JTPA in 1982, with its national program to provide training and reemployment assistance to displaced workers under Title III. Also, under the Carl D. Perkins Vocational Education Act of 1984, Congress expanded vocational education opportunities for single parents and homemakers (including displaced homemakers) and for adult workers displaced by technological change or in need of training to remain employed. These recent initiatives, together with the TAA program, which has existed since the early 1960s, emphasize the need for assistance to displaced workers as a specific component of U.S. training and employment policy.[16]

However, taken together, these initiatives reach only a minority of displaced workers; JPTA Title III, the largest program, probably serves less than 5 percent of the eligible population. Whether policymakers see additional efforts for displaced workers as needed will depend on how the issue is viewed in a broader context, which includes current budget deficits and the needs of other groups for employment and training assistance. Specific actions and short-term funding levels chosen depend largely on whether Congress views support for worker adjustment as an emergency response to high unemployment during economic downturns or a continuing national commitment. Regardless of the way worker adjustment policies are viewed, displacement is a continuing problem, affecting millions of workers every year. If Congress does wish to strengthen adjustment assistance to displaced workers, OTA's assessment of the experience to date with such assistance suggests a number of options that merit consideraton.

These options have been divided into 11 issue areas. Issue areas 1 through 4 deal with improvements in delivery of assistance to displaced workers, or workers who have received notice of layoff. Issue area 5 contains options for improving services to displaced homemakers. Issue areas 6 and 7 deal with options to improve research on occupational skills, occupational forecasting, and labor market information. Issue areas 8, 9, and 10 include options to improve adult basic skills, or proactive strategies to improve both the quality of the existing work force and the ability of individual workers and homemakers to make career transitions if they are displaced. Issue area 11 deals with options to develop, improve, and disseminate new instructional technologies for adult basic and vocational education.

Issue Area 1: Improving rapid response to displacement

Experience in existing programs clearly shows the benefits of making retraining and reemployment services available to workers before they are laid off. JTPA permits pre-layoff assistance for workers who have received notice of termination or layoff, but many States offer very little pre-layoff assistance. In some cases, this is because there are no institutions designed to respond rapidly to an announced plant closing or mass layoff. Only a few States have designated personnel to respond to plant closings. Congress might wish, through oversight or legislative directives, to encourage more States to establish early-response institutions, or it may wish to establish a federally supported service, possibly like Canada's IAS, to deliver pre-layoff assistance.

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[16] Several other measures authorizing adjustment assistance to workers who have lost their jobs due to changes in public policy have also been adopted over the years. These special programs have not been addressed in this report.

Even when effective institutions exist to deliver pre-layoff assistance, they operate best when there is advance notice of plant closings or mass layoffs. Thus, Congress might wish to provide incentives for advance notification of plant closings or mass layoffs, or to require some form of advance notice.

Issue Area 2: Encouraging rapid reemployment

The emphasis of JTPA Title III is on placement in new jobs, and most projects have reported a fair degree of success in placing their clients, largely through job search assistance, job development, and finding on-the-job training positions. Performance in placing workers in new jobs could be improved with additional measures to offer more effective relocation assistance, and to provide temporary wage supplements for displaced workers taking jobs that pay less than the old job, thus easing the adjustment.

Many displaced workers cannot find new jobs at comparable wages to those on the jobs they lost. Temporary wage subsidies could be offered, limited to a fixed transition period during which workers could get experience on the new job and recoup some of their earning power. One proposal would allow displaced workers to receive up to 80 percent of their remaining UI benefits over the course of a year if they took a lower wage job before exhausting benefits. This might help some displaced workers get back to work earlier than they otherwise would. The wage supplement is a new concept. One approach would be to try it first on a small scale in a pilot project.

Some displaced workers—especially those in communities where job prospects are poor—might be able to find jobs more comparable to the ones lost, if they had sufficient information and resources to relocate. Relocation assistance is allowed under JTPA, but most States were making little use of it in their Title III programs in 1984-85. Greater relocation assistance funds are available under TAA, which technically expired in late 1985. Continuation of the TAA program and legislative directives encouraging greater emphasis on relocation assistance, in appropriate circumstances, under JTPA might be considered.

Another way to facilitate relocation is through improving intrastate or interstate job banks to provide jobseekers with lists of current job openings throughout the State, region, or Nation. This would require computerization of the job banks. JTPA authorized a nationwide computerized job bank and job matching system. A limited interstate job bank has been set up, but it covers only a small number of jobs, and is only partially automated. Most State systems—which are the basis for an interstate bank—are not fully computerized either.

Good estimates of the costs of computerizing State job banks and linking them in an interstate system are not available, but preliminary indications are that fully automated systems within each State might require capital spending of at least $240 million over a period of 5 years or so. (This does not count the costs of telecommunication equipment, software, and staff training time.) Benefits of a more comprehensive and fully automated interstate job bank are uncertain as well. It is not clear that workers would use the information in the job bank to relocate, since many of the jobs listed by Employment Service offices are low skill and low pay, and probably would not attract workers from other communities. However, improvement of the system might encourage employers to list more and better jobs.

In light of the uncertainties, a thorough investigation of the costs and potential benefits of automating either intrastate job banks or a centralized interstate job bank would be prudent before moving ahead. Any such study should compare a centralized, on-line system with several ways of linking individual automated State systems. Even without automated job banks, greater emphasis on relocation assistance through JTPA could be effective for a minority—possibly 5 to 10 percent—of displaced workers.

Issue Area 3: Enhancing education and training opportunities in Title III projects

A substantial minority of participants in displaced worker projects—as many as 20 to 30 percent in well-run projects—view training as the best route to a new job with potential for advancement. This percentage fluctuates, depending on the availability of job opportunities in the community. During recessions, more workers choose training, while during periods of prosperity, the number of workers seeking training tends to fall because prospects for reemployment are better.

Regardless of the condition of the local economy, few workers can afford to undertake training without some income support. For many workers, the principal source of income support is unemployment insurance, which is generally limited to 26 weeks. JTPA specifically directs States to excuse workers in Title III projects from UI work search requirements while they participate in training courses.

Reflecting the 26-week constraint of UI income support, some vocational training institutions have developed compressed courses that run for 22 weeks. Some courses also have flexible entry times. However, only the workers who enter training before or shortly after layoff would be able to complete a 22-week course while still receiving UI. Many workers prefer to search for new jobs before undertaking training, and many displaced worker projects encourage this approach. For these workers, opportunities for skills training are limited or possibly foreclosed. Moreover, although short courses may be sufficient for some kinds of training, workers who could benefit from longer training courses may have to forgo them because of lack of income support. Loss of health insurance is another reason that some displaced workers choose not to undertake training, but instead try to get a new job as soon as possible.

For workers interested in intensive skills training, additional income support may be needed. JTPA Title III does not prohibit stipends to workers in extended training or education, but stipends are very seldom provided. Various ways of providing such income support might be considered. Recent legislative proposals include enlarging the access of displaced workers to Federal student aid assistance, providing an additional 26 weeks of Federal unemployment compensation to workers in intensive training or remedial education, and permitting displaced workers to use penalty-free disbursements from Individual Retirement Accounts as income support while training. These kinds of assistance, which could be implemented singly or in a package, could be targeted to workers who have demonstrated a commitment to extended training or education, rather than permitting all workers to take advantage of extended income support.

In addition, some congressional bills have proposed to fund extended health insurance benefits for unemployed workers, and others would provide it for workers affected by closure of a defense facility or defense-related business. Congress might consider providing some form of extended health benefits for displaced workers who are enrolled in vocational skills training courses as part of an income support package as described above.

Up to 20 percent of the participants tested in displaced worker projects have shown deficiencies in basic educational skills; some of these workers require fairly intensive remedial education before they can benefit from vocational skills training courses. Many other workers have less severe basic skills deficiencies, but still may need some help with basic skills. Remedial education currently is a clear but unmet need in the Title III program. As shown by some exemplary projects, displaced worker projects can deliver remedial education very effectively. However, most States give little or no attention to remedial education in their Title III programs, and even those that do fall short of the need (assuming that roughly 20 percent of displaced workers need the service).

Remedial education might be encouraged if States were directed to certify remedial education programs as approved JTPA training for UI recipients, and excuse those recipients from work search requirements while enrolled. Basic educational achievement could be included as a performance standard in JTPA Title III programs, as it is in Title IIA programs. Finally, Congress might consider earmarking a portion of JTPA funds for remedial education.

The estimated cost of providing remedial education for approximately 20 percent of JTPA Title III participants is about $6 million per year—about 3 percent of Title III appropriations in fiscal year 1985. Since Title III has probably served less than 5 percent of the eligible population, however, this $6 million would not go very far toward solving the basic skills problem in the work force.

Issue Area 4: Improving information and reporting on JTPA

Current information and reporting under JTPA and related programs does not adequately support congressional needs. The most pressing needs are for current information on the numbers of people affected by permanent layoffs and plant closings, on the demand for JTPA services overall, and on the demand for different types of services offered in JTPA programs. Without this information, Congress lacks adequate guidance in establishing yearly funding for Title III, or for determining the effectiveness of the program.

Reporting on the demand for services in displaced worker programs is out of date. Congress was considering the fiscal year 1986 budget, which will determine JTPA funds for the program year beginning July 1, 1986, in the summer of 1985. At that time, the most recent report on the numbers of workers served and program spending was over a year old. Brief quarterly or semiannual reports showing current levels of spending and demands for services might serve better as a guide for congressional appropriations.

Moreover, information on the mix of services offered in Title III programs—including vocational skills training, on-the-job training, remedial education, relocation assistance, and job search assistance—is incomplete and uncertain. More detailed reports, at least on an annual basis, on the service mix, outcomes by different type of service, and characteristics of participants receiving various kinds of service could help Congress determine the benefits of this federally funded program, and signal needs for changes in direction.

JTPA directs the Secretary of Labor to collect data on the number of permanent layoffs and plant closings, the number of workers affected, the geographical location of closings, and the types of industries. Money for an initial 8-State pilot study was not appropriated until 1984. In fiscal year 1985, Congress appropriated funds for a nationwide survey, which is now being done; funds were again appropriated for this purpose in fiscal year 1986. Annual updating of this information may require specific appropriations in the future.

Issue Area 5: Improving services for displaced homemakers

In 1984, the Carl D. Perkins Vocational Education Act authorized spending of up to $86 million per year on grants specifically designated for services to single parents and homemakers, including displaced homemakers. In mid-1985, about $63 million had been appropriated for grants serving this targeted group in the year beginning July 1, 1985. An undetermined but probably sizable portion of these grants will be spent for assistance to displaced homemakers. In the past, Federal spending targeted to displaced homemakers was comparatively small, never exceeding about $8 to $10 million per year.

Yet even the increased Voc Ed grants are still very modest in relation to the eligible population. No estimate has been made of the numbers of single parents and homemakers, but displaced homemakers alone probably number 2 to 4 million. If all of these people were to participate in the new Voc Ed program—and two-thirds of the Voc Ed set-aside grants for single parents and homemakers went to displaced homemakers—$11 to $22 per person would be available. A roughly comparable figure for displaced workers eligible for JTPA Title III assistance in the transition year 1983-84 was $74. Under the Comprehensive Employment and Training Act of 1980, the comparable figure for disadvantaged workers eligible for general employment and training programs was $250 per eligible person. These figures are given only for purposes of comparison; actual uptake of services by eligible people is never 100 percent, and participation varies among groups.

Voc Ed programs under the Perkins Act were just gearing up in 1985. It is too early to identify all the policy issues that might arise under the new law, but one that is already under debate is whether and how to amplify the very sparse data about displaced homemakers. Very little information has been collected on existing programs. The Perkins Act authorizes, but does not require, the Department of Education to develop data on provision of vocational education opportunities for single parents and homemakers, including displaced homemakers. This information, as well as data on provision of other services such as outreach and counseling, job development, job search assistance, and basic education, would be useful to States in using existing funds efficiently, and to Congress in making appropriations for these purposes in the future.

A potential topic for oversight is whether the State Sex Equity Coordinators are able to wield the authority the law gives them to administer the single parents and homemakers programs, and whether the set-aside funds are reaching their intended beneficiaries through programs designed to meet their special needs. The Perkins Act places substantial emphasis on set-asides, or targeting portions of the grants to special populations. These set-asides, including the 8.5 percent for single parents and homemakers, were opposed by many in the vocational education establishment. As implementation of the act gets underway, Congress may wish to focus oversight attention on how the set-aside provisions are being met.

JTPA is a potentially important source of employment and training services to displaced homemakers. Although there is some overlap in services with those that Voc Ed grants can provide, JTPA emphasizes job placement more heavily, while the focus of the Voc Ed act is on training. Congress did not define displaced homemakers as a principal target group for JTPA programs, although they are specifically mentioned in the law as one of the groups facing employment barriers and therefore eligible for some services. Because of income eligibility criteria, it can be difficult to use JTPA funds in projects designed to serve displaced homemakers. Congress may wish to provide legislative guidance on whether projects serving the special needs of displaced homemakers can be funded under JTPA, and whether JTPA services (either under Title IIA or Title III) should be more readily available to displaced homemakers.

For displaced homemakers, the barriers to training and education are probably greater than they are for workers displaced from paid jobs, because few displaced homemakers have either unemployment insurance or income from another family member to sustain them during training. According to directors of displaced homemaker projects, many of these women need remedial education in order to get an adequate job, and many could benefit from vocational skills training to improve their earning power and possibilities for advancement. Congress provided for only very limited income support in both the Perkins Act and JTPA, and training allowances are seldom provided. Another possible source of income, guaranteed student loans, are more readily available to young students than to displaced adults. Congress may wish to consider whether to encourage or provide more income support for displaced homemakers in training. Better information on services provided to displaced homemakers, and numbers of women receiving the services, would provide an improved basis for consideration of this issue.

Issue Area 6: Improving labor market and occupational information

Whether displaced workers and homemakers choose training or an immediate job search, they can benefit from detailed, up-to-date information on the kinds of jobs available in the local labor market. The same is true of projects that offer reemployment, education, and training services to displaced workers and homemakers. In many States the information provided to displaced workers projects is neither current nor detailed enough to give an adequate picture of what occupations are in demand locally. As a result, many projects are forced to operate with little information or initiate more extensive job development efforts than would be necessary if good local information existed.

In various surveys, BLS collects a great deal of information on local unemployment rates, levels of employment and earnings by industry, and on occupations within industries. Much of this information is funneled into national employment estimates and occupational forecasts. Some, but not all, States collect additional data to provide more detail on the occupational patterns of local industries. In these States, ES analysts put together various sets of information, from the local to the national level, and thus provide a rough picture of growing, static, and declining occupations within the State or, in some cases, local areas. With the sharp drop in Federal funding and staffing levels in the ES system since fiscal year 1982, however, the ability of many States to collect additional information on local employment has been weakened. If Congress wishes to place more emphasis on the provision of detailed local labor market information, several options are available, including: 1) legislative guidance through JTPA oversight to focus attention on providing better information at the local level and on more informed use of existing data, and 2) appropriation of funds for the specific purpose of developing local labor market information.

Issue Area 7: Conducting research on the effects of technology on jobs

Technological change affects both the number of job opportunities and the skills and education needed to perform jobs. BLS long-range forecasting specifically attempts to incorporate the effects of technological change on the numbers of occupations in different industries. Forecasting the effects of technological change on the numbers of jobs will, inescapably, result in inaccuracies, simply because the effects of technologies on jobs are influenced by a variety of factors that are difficult to predict, including overall socioeconomic changes and domestic and international competition. These forecasts would be more useful if additional resources were devoted to sensitivity analyses of the effects of major changes, including changes in technologies. Sensitivity analyses might help jobseekers and people making career choices to understand how the requirements of given careers might change in the future, but the analyses would be unlikely to improve significantly the overall accuracy of the forecasts.

How new technologies will affect skills and education needed in the work force is not completely determined by the technologies alone. Management, workers, and society in general make decisions which influence how technologies affect jobs. The characteristics of the machines or technologies, however, do limit available choices. Therefore, if American businesses are to create jobs that build on the current and potential skills of American workers, those skills must be taken into account when the technologies are designed. There is a tendency to design skills and humans out of new, automated production processes; there do not seem to be many deliberate efforts to design new technologies that create new, skilled jobs or enhance the skills of existing workers, although such efforts could pay dividends not only in providing better jobs, but in using the technologies themselves more effectively.

Congress might wish to encourage systematic evaluation of the employment impacts—both quantitative and qualitative—of new technologies by requiring evaluation of employment impacts in major federally supported technology development efforts of the Department of Defense, the National Science Foundation, and the National Bureau of Standards. In addition, Congress might wish to direct the National Science Foundation or other agencies to fund one or more centers for engineering research in alternative work organization or job design areas, aimed at finding ways to design skilled jobs in conjunction with new or existing technologies.

Issue Area 8: Improving basic skills in the work force

While it is clear from evidence gathered in displaced worker and homemaker projects that basic skills deficiencies are widespread, the exact magnitude of the problem is unknown. A better understanding of the dimensions of the basic skills problem of young adults (21 to 25 years old) is expected in the spring of 1986, when a national survey of functional literacy levels among this age group is scheduled for completion. This is the first national survey of adult basic educational skills in more than a decade. Regular, systematic surveys of basic skills performance levels among adults (not just young adults) could help provide guidance to Congress in funding programs to combat adult functional illiteracy.

Even without more exact information on the numbers of adults with basic skills deficiencies, Congress may wish to consider expanding support for basic educational programs for adults. This could be accomplished through Federal support of adult basic education through increased outreach and provision of services under the Adult Education Act (AEA), together with development of a long-term strategy to increase participation in AEA programs. Encouraging employed adults with poor basic skills to upgrade those skills while still employed can help improve the competitiveness of their employers, as well as help them to make career changes if they do become displaced. Displaced workers with good basic skills are more likely to find new jobs quickly after being displaced, and there are more job and training options open to them (see Issue Area 3, above).

Issue Area 9: Encouraging greater use of adult education to ease worklife transitions

Many unskilled or semiskilled workers are unaware that adult education can reduce their vulnerability to displacement, or that training programs are available within their communities. While skilled workers, professionals, and managers are more likely to take advantage of educational and training facilities in their communities or workplaces, these people, too, may not know about all the options open to them. Congress may wish to consider authorizing outreach programs to inform adult workers of the postsecondary educational opportunities in their communities, to encourage their participation. This kind of program also could be used to inform people with basic skills deficiencies about remedial education opportunities that would prepare them for postsecondary programs.

Another option is a program of educational financial assistance targeted to workers most likely to be displaced. Under existing policies, tax deductions for training generally extend only to courses related to a worker's current job, and part-time adult students who are employed have difficulty competing for Federal financial assistance. Workers in industries or occupations that are considered particularly vulnerable to displacement might be given preferences in access to Federal financial assistance. Eligibility for the assistance could be determined by State or Federal labor and employment agencies.

Issue Area 10: Encouraging training and retraining of active work forces

The impact of displacement on the work force can be reduced if workers in displacement-prone industries or occupations begin to make transitions to different careers while they are still employed. Often, factors leading to displacement develop over a long time, sometimes over several years. While some workers may make effective use of this time to find a new job or develop different job skills, most do not. This is especially true of the workers most vulnerable to displacement, that is, unskilled or semiskilled workers.

One of the most effective ways to deliver education and training to workers is at the workplace, with the support of employers. Estimates vary greatly, but American business probably spends tens of billions of dollars a year on worker education and training—much more than the Federal Government. However, with the exception of on-the-job training (which is not usually counted as a training expenditure), most of this assistance is heavily weighted toward professionals, technicians, managers, and other highly skilled people. The workers most vulnerable to displacement—low-skilled, nonsupervisory or production workers—are probably the group least served by employer-provided education and training. In addition, many small businesses do not have the resources to provide the kind of education and training many larger businesses offer.

Measures Congress could consider to broaden employers' support for employee education and training include: 1) continuing the exclusion from taxable income of employee benefits under qualified employer-provided continuing education programs, an exclusion which will not apply to the 1986 tax year unless it is extended by Congress; 2) developing an improved information base on employer-provided training and education to better judge its adequacy, and to help identify public policies encouraging these services; and 3) adopting new incentives to encourage employers to extend training and education opportunities to underserved groups of workers, possibly by allowing employers to use such expenses as tax credits. An alternative to the third option might be a small additional payroll tax to finance retraining of either active or displaced workers from businesses that do not choose to provide such services themselves. Employers who do provide education and training to low-skilled production and nonsupervisory workers could be exempted from such a tax.

Issue Area 11: Encouraging research, development, and transfer of instructional technology

New instructional technologies, including computer-aided instruction (CAI) and interactive videodisk systems, have great promise in adult training and education. These systems can improve access to training and education since they can be made available at times and places that are convenient for adults. They also can reduce the amount of time it takes to learn—an important advantage given the limited amount of time most adults have available for education. Some studies have found that adults in computer-based training achieved the same competencies as adults in conventional training in less than three quarters the time. Although the initial costs of these technologies are often viewed as a barrier to their adoption, the costs are decreasing, and operating costs can be very low when high use levels are achieved. New educational technologies are especially promising for teaching basic skills, where a large clientele and relatively unchanging curriculum offer the potential for very cost-effective instruction.

New educational technologies, despite their promise, are not yet widely used in adult education. One reason is that few teachers and administrators have much experience with these technologies, and potential users have trouble judging the quality of the courseware that is available. Most courseware was not specifically designed for adults, and information on the performance of courseware packages is seriously lacking. Potential users need data on how well different systems work, as a basis for investment.

If Congress wishes to encourage greater use of instructional technologies, the Federal role could be expanded through more effective measures to transfer federally developed training technologies to education and training institutions, and the private sector; greater support for development of new adult basic and vocational training materials for instructional technologies; and establishment of one or more national centers to focus research on how adults learn.

Many instructional technologies in current use were developed or supported by Federal agencies—mainly the Department of Defense but to some degree the Department of Education and the National Science Foundation. Systems developed for the specific needs of the Department of Defense can often be adapted to civilian adult education, but information frequently is not available to potential users. Moreover, the expense of modifying them may inhibit adoption. Congress might wish to consider establishing a training technology transfer office to keep a descriptive inventory of training technologies developed under Federal agencies, together with information on the capabilities of the technologies. Such an office could also encourage adaptation of the courseware for civilian use by allowing commercial enterprises to lease or buy federally developed technologies, modify them, and sell them to end users.

Much of the courseware used in basic skills education was developed for high school students—not the mature population of adults that have basic skills deficiencies. Support for research and development of new courseware specifically designed for adults could enhance the potential contribution of instructional technology in the adult education system. Such activities could be funded through the Adult Education Act. To avoid competition for the limited funds available for delivery of remedial education services under AEA, it may well be that a separately funded mechanism would be needed.

Congress may also wish to encourage more research on the nature of the adult learning process. Currently, little research is conducted on such questions as how to design curricula and instructional approaches so that they are appropriate for adults, how to measure functional literacy levels among adults, and how to evaluate adult performance in educational programs. Also, little attention has been given to the adult learner in evaluations of instructional courseware. Such issues could be addressed through a research program focused on the adult learner. One option would be for Congress to direct the Department of Education to charter one or more national research centers for adult learning and basic skills.

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Chapter 2

Policy Issues and Options

INTRODUCTION

In recent years, the issue of how to assist workers who have lost their jobs due to structural changes in the economy has prompted considerable debate in Congress. In 1982 Congress established a new national program, under Title III of the Job Training Partnership Act (JTPA) to provide special training and reemployment assistance for displaced workers. This initiative and Trade Adjustment Assistance (TAA), a program begun in the early 1960s, are the major Federal programs to help displaced workers as a special group of unemployed people.[1] The Carl D. Perkins Vocational Education Act, passed in 1984, expanded the vocational education opportunities open to adult workers who lose their jobs because of technological change or need training to remain employed. The Perkins Act and some provisions in JTPA also authorize services to displaced homemakers.

Assistance for displaced workers is part of a whole range of government and private actions needed to keep the U.S. economy open and growing in an increasingly competitive world. Certain broad government policies, such as fiscal and trade policies, related both to U.S. competitiveness and to maintenance of high levels of employment are touched on in this assessment, but are not analyzed here. State, local, regional, and Federal economic development policies may also contribute to the reemployment prospects of displaced workers. In some localities and regions, strategies to attract business, to stimulate job creation in the private sector, and to create some public sector jobs as well may have helped to reverse economic decline. While the importance of economic development and job creation strategies are recognized, specific policy issues and options related to these two topics are not within the scope of this assessment. Most of the policy issues discussed in this chapter are focused on helping people prepare for worklife changes, and helping workers to cope if displacement occurs.

Current Programs

The largest and most important program specifically for displaced workers—Title III of JTPA—has existed for only about 3 years and in most States began operation less than 2 years ago. The program supports State and locally administered projects that provide displaced workers with training, retraining, job search assistance, placement services, and relocation assistance. Those eligible for assistance in Title III projects include the following: 1) laid-off workers who are unlikely to be able to return to their previous industry or occupation, 2) workers who lost jobs due to permanent plant closings or layoffs, and 3) the long-term unemployed who have limited opportunities for reemployment.

As this report was completed (December 1985), the level of services that States would offer displaced workers in the coming year was somewhat uncertain. Congress voted a 55-percent reduction in funding for JTPA Title III for fiscal year 1986, down from $223 million the year before to $100 million. In proposing and defending the cut, Administration officials argued that not all appropriated funds from previous years had been spent, and that the carryover funds plus the new appropriation would be enough to maintain current service levels throughout the 1986 program year.[2] (See the discussion in ch. 5.) The reduction in the appropriation would affect different States quite differently, however. Some States that got an early start on active programs for displaced workers and did not have large carryover funds might have to cut back services. The allocation of most Title III funds among States is fixed by statutory formula and would be difficult to change. In making the funding cut, Congress directed the Secretary of Labor to give first priority for discretionary Title III funds to States that would otherwise have to reduce their services to displaced workers.

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[1] In addition, several other Federal programs have been established over the years that provide adjustment assistance to workers displaced under certain highly specialized circumstances. These specialized programs are not addressed in this report.

[2] In addition, the Administration sought a fiscal year 1985 program rescission of $119.5 million for Title III of JTPA and a $25 million rescission in the TAA program. These proposed rescissions were not acted on by Congress.

The status of the other large Federal program for displaced workers—TAA—was uncertain as this report was completed. TAA assists workers certified to have lost their jobs because of the impact of import competition. The program has been on the books since the early 1960s, but has been widely used only since 1974.

Up for reauthorization in 1985, TAA was temporarily extended by Congress through December 19, 1985. However, Congress adjourned for the year without completing action on a budget reconciliation bill that proposed a longer term reauthorization for TAA.

While authorization for TAA technically expired after December 19, 1985, the 99th Congress was expected to give further consideration to the program in its second session. In addition, some TAA services can continue through fiscal year 1986 under a continuing resolution passed just before Congress adjourned for 1985.

Debate about year-to-year funding levels for displaced worker programs should not obscure the longer term, more fundamental issues concerning the prospective role and need for displaced worker programs in an economy that will continue to undergo structural changes in the years to come. Whatever the specific funding levels provided in the short term, the need for new policy directions for displaced worker programs are likely to depend on whether these programs are viewed as emergency responses to high levels of unemployment during a recession, or as a continuing national commitment.

Displacement remains a serious problem in economic upturns as well as during recession (see ch. 4). Public attention to displacement, however, tends to rise and fall with the unemployment rate. Title III of JTPA, like the Manpower Development and Training Act 20 years earlier, was adopted when unemployment was high (9.4 percent in 1982, compared to 7.3 percent in the first half of 1985). The initial implementation of JTPA, in the transition year program that began in October 1983, coincided with a rapid economic recovery. Structural unemployment did not vanish with recovery, however.

Displacement is likely to be a continuing, possibly accelerating feature of the economic life of the Nation. Global competition is hastening the adoption of new production technologies, the loss of some domestic production to lower wage areas abroad, and the shrinking of some older industries. This heightened competition stimulates shifts in product lines, locations, and production techniques—changes characteristic of a dynamic economy—to cause displacement in particular industries, occupations, and regions even when the overall economy is doing quite well.

Thus, the need for adjustment services provided by displaced worker programs will continue, even though the level of demand for some services may fluctuate depending on the state of the economy. In better times, more displaced workers may find new jobs on their own; fewer may opt for extensive retraining to find them. In worse times, demands for retraining and assistance in finding jobs are likely to be greater. But displacement and the desire for assistance on the part of some displaced workers is a lasting feature of a rapidly restructuring economy, in good times as well as bad.

Major Policy Goals

With this perspective, Congress may wish to define some major goals for dealing constructively with displacement when it occurs, preventing it when possible, and preparing for inevitable change. Three such goals might be to: 1) expand services to displaced workers and put a stronger emphasis on training, 2) improve the skill level of the U.S. work force in general, and 3) enlarge the information base both for programs that serve displaced workers and for those that help Americans prepare for work-life transitions.

Expanding Services to Displaced Workers and Emphasizing Training

First, there are policy choices to be made on how many displaced workers government-sponsored programs should try to reach, and how much emphasis retraining should receive in the mix of adjustment services offered. In the first years of the new JTPA Title III program, only a small proportion of eligible displaced workers—probably less than 5 percent—received Title III services. It also appeared that most programs focused strongly on placing workers promptly in new jobs, with less emphasis on retraining and other relatively expensive services, such as relocation. In projects strongly committed to training, as many as one-third of participants may enroll, and costs per client are typically $2,000 or more. In the JTPA transition year, ending June 1984, the Title III program cost per client was $768; in the 1984 program year, ending June 1985, the cost per client was $895.[3]

If Congress wishes to support a broader displaced worker program, designed to attract more participants and enlarge training opportunities, it might consider a package that includes: 1) aggressive outreach, including crisis response teams that help deliver adjustment services in plants which are closing or undergoing mass layoffs, starting before the layoffs begin; and 2) a stronger emphasis on retraining, including extended income support—up to 1 year or more, at the level of unemployment insurance benefits—for displaced workers and displaced homemakers who are enrolled in training needed for employment. Training would include, for those who need it, remedial work in reading and math skills.

The costs of a Title III program extended to more people, combined with a stronger commitment to retraining, would be considerably higher than present program costs, although benefits to the workers involved and to society would also increase. A nationwide program of aggressive outreach, including pre-layoff assistance, might cost the government about $30 to $50 million per year, depending on how much is contributed by the private sector and assuming that the services would reach about 300,000 people annually.[4] However, savings gained from more effective service delivery could offset some of these costs. Benefits in the form of faster reemployment of displaced workers, and less spending for unemployment insurance and income transfer payments, might also offset costs.

The costs of greater emphasis on retraining, though they cannot be figured precisely, are likely to be substantial. Benefits would be gained when the training begins to pay off in higher incomes for the retrained workers, more taxes paid on their incomes, and less need for transfer payments. More effective outreach might attract many more displaced workers to the Title III program. The Labor Department currently uses a planning figure of 150,000 per year for displaced workers expected to receive Title III services. Assuming that aggressive outreach raises the figure to about 300,000 per year and that 20 percent of the extra participants opt for training, at a cost of $2,000 apiece more than the current average cost per Title III client, the additional cost would be about $60 million per year. This compares to $223 million appropriated for all Title III services in fiscal year 1985, and $100 million for fiscal year 1986.

In addition, if 5 percent of displaced workers—say 15,000 people—opted for extended training and received income support for one year, the extra cost (beyond the average unemployment insurance benefits paid to unemployed workers now) would be about $47 million. Most displaced homemakers do not qualify for unemployment insurance. Income support for them during training—even at the modest level of $119 per week, the average unemployment insurance payment—could imply substantial outlays. For example, if 20,000 displaced homemakers per year chose this option, the cost would be about $124 million.

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[3] The Title III program cost per client given here is the Federal portion. For three-quarters of Federal Title III grants, matching funds are required; they may be public or private, in cash or in kind, and may include a wide variety of items, including unemployment insurance payments and the employer's share of subsidized wages for workers getting on-the-job training.

[4] Information on costs of various elements of displaced worker programs is summarized in later sections of this chapter, and is discussed more fully in chs. 5 and 6.

Given the likelihood of higher Federal spending if a more aggressive program of assistance to displaced workers is adopted, Congress might wish to consider alternative funding mechanisms for this option. For example, legislation has been proposed in the 99th Congress that would impose a small duty on imported goods, and earmark the proceeds for assistance to workers losing jobs on account of trade. If Congress believes the import duty concept has merit as a way to finance adjustment assistance, it might want to consider making all displaced workers eligible for assistance funded by the import duty—not just those displaced by trade. As discussed throughout this report, especially in chapters 8 and 9, the effects of trade, technological change, and changing consumer preference are so interrelated that singling out one as the cause for particular cases of displacement is always difficult, often impossible. Another possibility to consider would be a small payroll-based tax for financing the retraining of displaced workers.

An import duty or payroll tax might not be considered appropriate for financing services to displaced homemakers. Yet an argument can be made that both individual employers and the competitive position of the American economy benefit from having available well-trained, competent workers, offering skills that are in demand. Thus, opening programs financed in these ways to displaced homemakers might be a possibility.

Improving the Skills of the Work Force

A second major goal that Congress may wish to consider is a vigorous program to improve the skill level of the U.S. work force. The purpose would be to increase the competitiveness of American firms and, at the same time, to protect the earning capacity and standard of living of American workers. Instead of reacting to displacement after the fact, this set of options would try to prevent it when possible, and otherwise prepare for it so as to mitigate its painful effects. An aggressive program in support of this goal could include: 1) greater emphasis on improving reading, math, and other basic skills of adult workers; 2) support for research, development, and evaluation of technologies that effectively help adults learn both basic educational skills and specific technical skills; 3) transfer of federally developed education and training technology to the public education system and to private businesses; 4) support for programs that help adults continue their education and training on their own initiative; and 5) support for the retraining of active workers by employers.

The costs to the Federal Government of achieving this goal are difficult to determine, even roughly, but would certainly be substantial. For example, the most important Federal program for adult basic education supports State and local projects that serve between 2 million and 2.6 million people per year; these figures are small compared with a frequently cited estimate that more than 25 million American adults are functionally illiterate. While that estimate should not be accepted uncritically, it is clear that current programs serve only a fraction of adults who need basic education. Federal expenditures for the program in fiscal year 1985 amounted to $102 million ($38 million less than the law authorized). States typically contribute an equal or greater amount than the Federal Government contribution. It is not clear how many more adults would enter the program if more emphasis were placed on outreach. Even with expanded outreach, it is unlikely that all of the people with basic skills deficiencies would be reached.

Instructional technologies, such as computer-aided instruction and interactive videodisk systems, hold high promise for adult education and for training of workers by private employers. An expanded Federal role to encourage use of instructional technologies for basic skills and technical training would entail some additional expenditures, but these costs could bring benefits (e.g., faster program completion by adult participants). Most courseware now used for adult basic education was developed for high school students or young adults. Thus, Federal support for research and development of courseware for basic skills might focus on mature adults. In addition, a specifically designed mechanism for transferring Federal training technologies and materials to the private sector and public educational institutions could be adopted, to give training technologies greater visibility than they have under existing, generic mechanisms for transfer of federally developed technologies. One legislative proposal would fund a mechanism of this kind at $3 million per year. Several other options for improving work force skills (e.g., greater support for individuals' continuing education, a tax credit for employers who offer increased training opportunities to their workers, and possible use of a small payroll-based tax to finance training and retraining activities) could also be considered. The costs to the Federal Government for some of these options (e.g., a tax credit) would depend largely on employer and employee responses to the incentives.

Improving Information

A third major policy goal for Congress to consider is improvement of information, so that training and employment programs are better matched with the needs of the labor market and can serve workers more effectively. For whatever other major goals Congress might decide to undertake, better knowledge is basic. Compared with the extra costs of active programs to serve more displaced workers or to upgrade workers' skills, costs of better information appear to be relatively low—in the tens, not hundreds, of millions.

An improved information program could include these elements: 1) more frequent and more detailed reports on how many workers are being served in Title III programs and what kind of services they are getting; 2) annual reporting on plant closings throughout the United States, including the numbers of workers affected, their characteristics, and the regions most affected; 3) adequate funds for collection and analysis of better labor market information at the local level, especially on occupations and skills in demand; 4) adequate funds for obtaining up-to-date qualitative information about jobs, for the use of educators, career counselors, training and employment project staff, and people making career choices; 5) evaluation of the employment effects of major technology developments that are federally supported; and 6) funding of a center for research on new ways to organize work and design jobs as technological advances take place.

Specific issues emerging from OTA's examination of displaced worker programs, displaced homemaker programs, and other employment, training, and education services are discussed in the rest of this chapter. A number of additional issues besides those briefly mentioned above are included. They are grouped into five policy areas: 1) delivery of assistance to displaced workers; 2) policy issues affecting displaced homemakers; 3) options for labor market information and research related to occupational change; 4) strategies for facilitating worklife transitions; and 5) the Federal role in research, development, and transfer of instructional technology.

DELIVERY OF ASSISTANCE TO DISPLACED WORKERS

Title III of the Job Training Partnership Act created a new program for offering adjustment assistance to displaced workers. In the brief time the program has existed, displaced worker projects have been launched in nearly all States. As in any new program, initial difficulties have been apparent in some States and projects. While some of these difficulties have been overcome with experience, other problems are more fundamental.

Overall, on the basis of currently available data, it appears likely that fewer than 5 percent of displaced workers across the country participate in JTPA projects. The reasons why people fail to participate are difficult to document, but they probably include lack of knowledge about the existence of programs, failure of some projects to offer services in demand locally, and relatively low demand for services during a period of economic recovery (as in the first years of the Title III program, 1983-85). Some of the approaches emphasized below, such as greater emphasis on outreach and prelayoff services, can be expected to increase participation in displaced worker programs.

The low participation rate of displaced workers in Title III projects suggests caution in drawing simple relationships between funding for the program and the rate of unemployment. An aggressive outreach effort that attracted more participants could also require increased funding for the program—even if unemployment should decline. Conversely, if nothing is done to improve participation levels, funding levels will remain modest, but only a small portion of displaced workers who could benefit from JTPA services will be assisted by projects.

OTA's review of the experience so far with displaced worker projects indicates that several issues related to delivery of assistance merit consideration: 1) improving abilities to respond rapidly to plant closings and mass layoffs; 2) encouraging prompt reemployment, possibly through temporary wage supplements or relocation; 3) enhancing education and training opportunities in displaced worker projects; and 4) improving information, reporting, and monitoring under JTPA Title III programs. Specific options for improving adjustment assistance in JTPA Title III programs are discussed below, and summarized in tables 2-1 and 2-2. In addition, questions about Trade Adjustment Assistance, the special program to assist workers displaced by competition from imports, are also discussed.

Rapid Response to Displacement (Issue Area 1, Table 2-1)

Experience so far with displaced worker programs strongly suggests that the best time to begin assistance to workers is before layoffs actually occur. Although not every worker will take advantage of the services early, having them available is important to boosting morale and offering training while workers are still eligible for the maximum amount of unemployment insurance and other forms of income support. Moreover, many workers will use job search assistance to find new jobs before the layoffs begin, so that their employment is never interrupted. Advance warning of layoffs makes it possible to take constructive action early; but unless it is associated with other measures to assist the displaced workers, it may be of only limited benefit to them, while possibly imposing added burdens on employers.

While JTPA authorizes pre-layoff assistance, only a few States have developed institutions to deliver services before layoff in any systematic fashion. In the event that Congress wishes to place greater emphasis on pre-layoff assistance, several options are available, including: 1) legislative guidance (through JTPA oversight or appropriations directives) to focus greater attention on pre-layoff assistance efforts (option 1a in table 2-1), 2) creation of a consultative service to encourage cooperative efforts by labor and management to offer pre-layoff assistance (option 1b), and 3) encouragement of early notice of mass layoffs and plant closings (option 1c). These options are not mutually exclusive, but could be implemented independently. Pros and cons of the individual options are discussed below.

An adequate, up-to-date count of plant closings in the United States does not exist, but most State directors of JTPA Title III programs reported that plant closings were continuing, in some areas accelerating, during 1984 and

Table 2-1.—Selected Options for Improving Adjustment Assistance in JTPA Title III Programs

Issue area and options	Relationship to other options	Relationship to current policy	Estimated cost of option to Government
Issue Area 1: Improving rapid response to displacement			
a) Congressional action such as oversight efforts or appropriations directives, to encourage greater use of pre-layoff assistance in Title III projects.	Although this option could be conducted in conjunction with 1b and 1c below, it is viewed here as a single option that would entail less extensive action than the other two options.	JTPA authorizes pre-layoff assistance, but provision of this service by State Title III programs is hampered by an absence of institutions to provide pre-layoff services and by absence of advance notice of impending layoffs in most States. Legislative guidance and encouragement through the JTPA oversight process might encourage more State action.	Implementing this option could increase JTPA Title III services; if pre-layoff assistance were not provided at the expense of current services, additional funding could be needed. Federal funding requirements under this option could depend on State carryover fund balances.[a]
b) Authorize the establishment of Federal or federally supported State consultative services to facilitate cooperative labor-management pre-layoff assistance.	If adopted nationwide, this option might be more effective if implemented in conjunction with advance notification (option 1c). However, the option could be implemented in selected States on a demonstration project basis (i.e., in those States that already require or encourage notification) or on a voluntary notice basis.	Demonstration projects could be conducted by the Secretary of Labor under current authority, using discretionary funds from JTPA. If adopted nationwide, legislative authorization for a small unit in an existing Federal agency, or for support of State-run adjustment services could be considered.	Based on experience with a similar program in Canada, such a consultative service might cost about $171 per worker served. If approach were applied nationwide, the costs could be as high as $30 to $50 million per year in Federal funds, depending on how much is contributed by non-Federal sources and assuming that 300,000 workers per year receive services. Selected pilot projects could serve as an initial step in implementing this alternative.
c) Require, or provide incentives for, early or advance notification of large plant closings and layoffs.	Advance notification (whether voluntary or required by State and/or Federal Government) is needed for pre-layoff assistance of the sort discussed in option 1b. A nationwide advanced notification system could provide information for plant closing and mass layoff data reports (discussed in option 4d).	There is currently no Federal requirement for advance notification although legislation has been proposed since 1974. One State (Maine) requires advance notice; a few other States (Massachusetts, Michigan, and Wisconsin) have voluntary inducements for early warning of plant closings or layoffs.	Costs not estimated; if implemented as a Federal requirement, costs would depend on expenses of establishing and maintaining a new Federal regulatory program.
Issue Area 2: Facilitating rapid reemployment			
a) Assisting workers in relocation through: i) legislative directive under JTPA to encourage greater use of relocation options; and ii) continued authorization of relocation help under TAA or provision of equivalent benefits under JTPA.	These two options could be adopted singly, or in concert. In general, the emphasis placed on relocation assistance will vary greatly among States and localities depending on prospects for local economic development to create new jobs. In some declining areas, relocation may be one of the few options open to displaced workers. Under JTPA Title III, the emphasis placed on relocation would depend on State program decisions.	The Trade Adjustment Assistance program has provided for relocation allowances to workers certified as displaced by trade, but will expire unless reauthorized. Relocation assistance also is permitted among the range of services authorized by Title III of JTPA, but few projects make much use of this option.	Among the few intensive relocation programs now in place, financial assistance to workers ranges from $650 to $1,600 per worker, with $1,050 being the average for TAA. If 10,000 workers were served each year, costs of relocation assistance would be about $8.5 million per year for JTPA Title III (assuming average relocation expenses of $850 per worker).[a] This is about 4% of overall JTPA funding in FY 85. A less expensive option would be to authorize a program of guaranteed or low-cost loans for relocation expenses.
b) Require the Secretary of Labor to submit a report to Congress which examines the costs and benefits of automated State job bank systems, linked in several ways, and compares these with a fully automated, central national job bank system with job-matching capabilities.	If the investigation showed that expanded, automated job banks would be cost-effective, they could facilitate relocation.	Section 465 of JTPA authorizes the Secretary of Labor to establish and carry out a nationwide computerized job bank and matching program. Limited steps towards implementing section 465 have been taken by the Labor Department's Employment and Training Administration.	The direct costs of conducting a study of the State systems and the national system have not been estimated, but would be minor. If study led to expansion of the system, major costs could be entailed. Cost of establishing a fully computerized nationwide job bank system with job-matching capabilities have not been estimated. By one estimate, it could cost $241 million over 5 years to bring just data processing equipment in all States up to date. Alternative funding mechanisms (e.g., possible use of ES trust funds) could be assessed in the study.
c) Authorize temporary wage subsidies to displaced workers as an inducement to take lower paying jobs with a potential for advancement. One proposal would allow workers to receive (over the course of a year) up to 80% of their remaining UI benefits if they take lower wage jobs than required by the State UI system.	Could be implemented independently or in conjunction with options 2a and 2b. For many workers, other options (e.g., relocation or intensive classroom training) offer more promise as a reemployment strategy.	Other than in some company-union contracts, no wage supplement programs currently exist. Given the lack of experience with the wage subsidy approach, one possibility would be to demonstrate wage subsidies on a trial basis.	Lack of experience with this approach suggests a need for caution in evaluating the costs of wage supplements. Based on assumptions stated in the text, the maximum cost of providing wage supplements under the option would be $690 more per worker than under current UI benefits. For every 100,000 workers in such a program, costs could be $69 million above the cost of their UI benefits. Actual costs could be lower if significant numbers of workers who would otherwise remain on the UI rolls until their benefits expired participated in the program.

Table 2-1.—Selected Options for Improving Adjustment Assistance in JTPA Title III Programs—Continued

Issue area and options	Relationship to other options	Relationship to current policy	Estimated cost of option to Government
Issue Area 3: Enhancing education and training opportunities in Title III projects			
a) Authorize income support to displaced workers in training programs which extend beyond the 26-week regular schedule for UI benefits, through a targeted program of assistance. An additional 26 weeks of income support at a level equal to UI benefits would make it possible for Title III participants to take 9-month training courses, leaving some time for job searches at the end of the courses. Eligibility for the extended support could be determined at an early point of regularly scheduled UI benefits.	In general, it can be expected that more workers will be interested in intensive training programs when immediate reemployment opportunities are limited; the availability of additional income support for displaced workers participating in intensive training could increase the number of Title III participants seeking training.	JTPA Title III does not prohibit a stipend program of income support for workers in intensive training, but stipends are very seldom provided. Some workers may not be able to participate in a long-term training program extending beyond expiration of UI benefits (usually, 26 weeks). Although UI benefit levels are used here to identify costs, additional income support for displaced workers in intensive training could be funded through JTPA Title III or a separate fund (such as has been provided under Trade Adjustment Assistance).	Costs of providing an additional 26 weeks of income support at an equivalent level to UI benefits might average about $3,094 per worker. For every 7,500 people (5% of the assumed number of JTPA Title III participants) found eligible for extended income support while training, costs of the program would be $23.2 million. Experience from Canada (which has an extensive training system coupled to income support) and limited data from California suggest that the per worker cost calculated above is on the high side.[a] [b]
b) Emphasize remedial education services in JTPA projects by:	These three options could be adopted singly, or in conjunction with each other. Options for remedial education in JTPA projects can also be viewed in the broader context of Federal assistance for adult basic and adult secondary education under the Adult Education Act. (See options for improving basic skills in the active work force, table 2-5, Issue Area 8.)		
i) identifying achievement of basic education skills as a performance standard in JTPA Title III projects;		i) "Employment competencies" are identified as a performance standard only for JTPA services provided to youths. Adults (either disadvantaged or displaced) are not included.	i) To the extent that additional services (beyond current services) were added, some additional costs could be entailed.[a]
ii) directing States to excuse unemployed people from UI work search requirements while enrolled in intensive remedial education classes; and		ii) Some States do not include remedial education among the "approved" activities in which participants receiving UI benefits are exempted from work search requirements while in training. JTPA specifically exempts Title III workers in full-time intensive skills training from such requirements, but does not explicitly mention remedial education.	ii) Same as (i) above, for JTPA. Some additional State UI costs would result.
iii) earmarking a portion of JTPA funds for remedial education in Title III projects.		iii) Some State JTPA Title III programs provide little specific funding for remedial education.	iii) Extra costs for remedial education specifically provided in some of the better Title III projects average about $200 per worker. For every 30,000 Title III participants needing such courses, and taking advantage of them, the cost would be $6 million, a little under 3% of the Federal Title III appropriation for FY 85.[a] [b]

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[a] Costs to the Federal Government of implementing the option may depend in part on whether States carry over substantial unspent, and unobligated Title III funds at the end of program years. Unspent Title III funds carried over from the program year ending June 30, 1985 amounted to $184.5 million nationwide. Amounts carried over differed greatly from one State to another.

[b] Estimate is derived from the available information about the proportion of displaced workers that are likely to avail themselves of this particular option. The Department of Labor uses the figure of 150,000 workers served by displaced worker projects each year for planning purposes; the 150,000 number is used in this chart as a "baseline" figure for the number of workers likely to use Title III in a hypothetical year. The actual figure could be higher or lower.

SOURCE: Office of Technology Assessment.

1985.[5] Under JTPA Title III, States may offer displaced workers pre-layoff assistance and may support early intervention programs, conducted in cooperation with employers or labor organizations, for plant closures or layoffs that are expected to be permanent. Several States have put considerable effort into rapid response teams. They attempt to find out about impending layoffs and bring reemployment programs to the workers early. Because most States do not require or even encourage advance notice of plant closings and large layoffs, the States that are interested in rapid response try to enlist voluntary cooperation from companies in giving early warning. Many State managers of JTPA Title III programs mention as a leading concern the need to learn of large layoffs and plant closings in advance, so they can offer prompt assistance.

In States where rapid response teams exist, the teams typically mobilize and coordinate responses from a number of State and local agencies whenever they learn about an impending plant closing. A team representative may make plant visits, acquainting the soon-to-be-displaced workers with options and available services, such as testing and assessment to determine transferable skills or needs for education and training, job counseling, job search training, and possibly job placement efforts.

How many major plant closings and layoffs are reached by these rapid response pre-layoff efforts is not known. Anecdotal reports suggest that in 1985 many States were not yet prepared to act promptly to news of layoffs. Some companies wishing to provide timely adjustment services to workers they are laying off have sought technical assistance from State Title III programs or local Private Industry Councils (PIC) but have not received a prompt, effective response. The ability of Title III programs to provide help quickly to displaced workers is one potential topic for JTPA oversight.

While States can support plant-centered displaced worker projects under JTPA, the law provides no mechanism especially designed to help create such projects. Moreover, no State has yet established any permanent agency to help labor and management establish their own worker adjustment and placement committees. Among the unique advantages of such committees are personal acquaintance with the workers and their abilities, and personal networks for turning up local job opportunities. In addition, unionized workers are more likely to trust and participate in a program that their union is committed to and responsible for. Management participation makes clear the company's commitment to assisting its laid-off workers. Many companies are able to make valuable contributions of space for a reemployment and retraining center in the plant, staff time to operate it, and time off for workers to attend program activities.

Canada's 20-year-old Industrial Adjustment Service (IAS)[6] provides a model for such a program and evidence that it can work well at moderate cost. Labor-management committees established by the IAS operate placement efforts in most of Canada's major plant closings and layoffs. Except in the depths of recession, the committees have consistently placed about two-thirds of the laid-off workers during the period they are in business (generally 1 year). In Canada's fiscal year 1982-83, IAS-assisted committees offered adjustment services to about 36,000 workers losing their jobs in plant closings and large layoffs. (Translated into terms of the U.S. labor force, which is nearly ten times as large as Canada's, this figure is equivalent to about 320,000 workers served.) The cost to Canada's National Government for the part of the IAS program that serves these workers was roughly $3.9 million in 1982-83, with contributions from the private sector bringing the total to about $6.1 million. Canada's economy was in deep recession in 1982-83; costs of the IAS program are reported to be lower in nonrecession years.

Four factors seem to account for much of the IAS achievement. First is the fact that the people who know the plant's workers best, and also are personally acquainted with other employers in the area, can be highly effective in turning up job openings. Second, the small cadre of IAS field officers (numbering only 66 for labor adjustment services in 1984) have a high degree of responsibility, are not bound by red tape, and respond quickly, usually within a day. Third, each labor-management committee is chaired by an independent, experienced chairman, chosen by the committee from an IAS list; thus, it is not necessary for each committee to reinvent the wheel. Finally, most of Canada's labor force is covered by legal requirements for advance notice of plant closings or layoffs affecting more than 50 workers; this enables the IAS to get an early start.

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[5] The U.S. General Accounting Office is analyzing data on plant closings and the number of workers affected by them; the study is scheduled for completion in 1986.

[6] IAS was formerly called the Manpower Consultative Service.

Because of significant differences in the two programs, Canada's IAS cannot be compared directly with JTPA Title III services in the United States. The JTPA program is much broader, encompassing training as well as placement, and it serves a more general population of displaced workers, not just those affected by plant closings and large layoffs. At the same time, at least in its first years, the Title III program served many fewer workers in relation to the size of the labor force. In addition, its measure of performance is looser.

About 177,700 workers were served in Title III programs during program year 1984 (July 1984 through June 1985), including 132,200 who were newly enrolled that year. Of those served, 113,600 had officially left the program --had been terminated, in the language used in State reports—by June 30, 1985. (The rest were still in the program.) Of those terminated, 74,200 were reported to have found jobs. (No information is available about those who were not placed; presumably they left the program while still unemployed.) The entered employment rate reported by the Labor Department for the Title III program nationwide for program year 1984 was 65 percent; the figure is based on workers who signed up for the program and were counted as having terminated from it. In Canada's IAS program, placement rates of 66 percent over the years are based on *all* the workers displaced in plant closings or mass layoffs. There are no comparable placement figures for JTPA.

In drawing lessons for the United States from the Canadian experience, an IAS-like program might be regarded as a supplement to, or a part of, the broader JTPA Title III program, not as a substitute. Continuing programs not based in plants would still be necessary, since many displaced workers lose their jobs a few at a time in communities affected by plant closings and layoffs. An IAS-like program, though moderate in cost, would require funding, possibly on the order of $108 to $171 in government funds per worker served, depending on how much the private sector contributes. New funds might be provided for such a program, or Title III money might be diverted for it, especially if these funds were exempted from the 5 percent limit the law imposes on State administrative costs of JTPA programs.[7]

Advance notice of layoffs is an important part of rapid response efforts. While some companies try to provide as much advance notice as possible, others provide little or no notice. In the United States, over the past decade, Congress, at least 20 States, and several localities have considered legal requirements for advance notice. Few States, however, have actually adopted such requirements. One State (Maine) currently requires advance notice of plant closings or layoffs affecting more than 50 workers; three (Massachusetts, Michigan, and Wisconsin) have voluntary advance notice laws.

At the Federal level, bills relating to advance notice have been introduced in every Congress since 1974 but none has been enacted. One proposal (H.R. 1616) was brought to the floor of the House in November 1985 and defeated by a close vote, 208 to 203. Some other proposals (but not H.R. 1616) would link advance notice to other requirements, such as provision of severance pay, extended health insurance coverage, and retraining or relocation allowances to the laid-off workers. Some opposition to plant-closing bills may have been based on objections to the cost of these obligations. Of the bills in the 99th Congress calling for advance notice, some (e.g., H.R. 211 and H.R. 1212) also include other employer obligations. However, H.R. 1616 (the bill voted on by the House in the 99th Congress) called only for 90 days advance notice of layoffs affecting 50 or more workers, unless business circumstances made this impossible, with no further obligations on employers except for consultation with employees on alternatives to plant closings. The idea of using the advance notice period for examining alternatives to closure raises a different issue from the options under discussion here, which relate only to delivery of effective adjustment services before layoff.

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[7] In late 1985, the U.S. Department of Labor was considering undertaking a pilot program similar to the IAS model in cooperation with a few selected States.

In the longstanding controversy over a legal requirement for advance notice, opponents have made two principal arguments: 1) that it burdens business, forcing companies to keep ailing firms open longer than is economically efficient, and weakening industrial competitiveness; and 2) that it can have a perverse effect, undermining the morale of the work force and changing terms of business with customers, suppliers, and creditors, thus forcing the closure of some plants that might have managed to stay open.

Those who favor the requirement point to experience, in other countries and in this country under union contracts, where advance notice is the rule. In Canada and a number of European countries, businesses (including U.S.-owned businesses) are able to comply with advance notice requirements. Experience also shows that worker morale can stay remarkably high after a plant closing announcement, *so long as effective readjustment services are offered promptly*. Without this constructive and timely action, advance notice might be disruptive. The two issues are intertwined. Provision of services to displaced workers before layoff is highly desirable; it is hard to accomplish without early warning of layoff; and early warning may accomplish little unless a prompt response is made and high-quality services are provided.

Laws that encourage, but do not require, advance notice are a compromise, and have sometimes won the backing of both sides in the argument. (e.g., both business and labor supported the concept of incentives for advance notice in Massachusetts; the State law encourages compliance with voluntary guidelines that include advance notice, and bars companies that do not comply from State-guaranteed loans and tax breaks.) In a less formal way, and without rewards or penalties to promote compliance, some managers of State JTPA Title III programs are trying to persuade employers that it is in their own interest to give early warning of plant closures and layoffs. They stress the potential for keeping worker morale high and maintaining good community relations. Although some success has been reported from these efforts—Arizona, for example, says that word-of-mouth reports from satisfied employers have encouraged other employers to cooperate—most States interested in pre-layoff assistance are frustrated by their inability to anticipate the layoffs.

Facilitating Rapid Reemployment
(Issue Area 2, Table 2-1)

Most displaced workers seek rapid reemployment when jobs similar to their old jobs in wages and skills are available in their communities. However, many displaced workers are not able to find comparable jobs. Programs such as relocation assistance or publicly funded temporary wage supplements might help these displaced workers get back to work more promptly than they otherwise would.

For displaced workers who take new jobs paying less than the old ones, wage supplements might bridge part of the income gap; the payments would be limited to a fixed transition period during which workers could get experience on the new job and recoup some of their earning power. Except in some collective bargaining agreements, no wage supplement program exists at present. In communities where job choices are few and poor, relocation offers some displaced workers improved chances for satisfactory reemployment. Relocation assistance, including both information and financial assistance, is currently available to displaced workers under Title III of JTPA and to eligible unemployed workers in the Trade Adjustment Assistance program, (Even though TAA's authorization lapsed as this report went to press, relocation assistance and some other kinds of TAA assistance apparently will continue through the end of fiscal year 1986 under a continuing resolution enacted on December 19, 1985. See subsequent section on TAA for details.)

If Congress wishes to consider the expansion of relocation assistance or the establishment of wage supplements to encourage prompt reemployment of displaced workers, several options are available, including: 1) legislative guidance through JTPA oversight to encourage attention to the relocation option (option 2a (i) of table 2-1); 2) continued authorization of TAA relocation assistance or provision of equivalent benefits under JTPA (option 2a (ii)); 3) direction that a study be conducted on the costs and benefits of expanding the intrastate and interstate job bank system to facilitate relocation of displaced workers (option 2b); and 4) legislative authorization of partial, temporary subsidies to displaced workers accepting jobs at substantially lowered wages (option 2c).

Relocation Assistance

U.S. workers have traditionally been mobile; many still are, especially younger people. However, it is usually true that fewer than 10 percent of displaced blue-collar workers relocate to new areas, even when there is little hope of satisfactory new jobs in their home communities. Many displaced workers are mature or older people for whom the costs of moving are high: selling a house at a loss, paying more for housing in a high-priced boom town, giving up a spouse's job, breaking family and community ties. In fact, the circumstances in which very many displaced workers might choose to relocate are probably limited. Vigorous efforts to help workers relocate are most appropriate in areas of long-term economic decline or in very limited labor markets (e.g., mining communities that once depended on copper, iron, or uranium, where chances of economic revival are remote). Considerable numbers of displaced workers may be encouraged to move from communities where their job prospects are poor, if they can get help in job hunting out-of-area, and financial help with relocation expenses.

On the basis of limited experience from an Employment Service (ES) program in the 1970s and the more recent efforts of a few displaced worker projects, it appears that several kinds of services are needed to support relocation of displaced workers, in appropriate circumstances. These services include: 1) information and counseling about employment and living conditions in other areas; 2) adequate, current information on job openings and assistance in locating suitable jobs for individual workers; 3) financial assistance to help cover the out-of-pocket costs of job searches and interviews in distant areas; and 4) limited aid with moving costs. The costs of moving from a depressed area can be so high that even generous relocation allowances will not fully cover them, but some assistance with moving expenses is an important part of the package.

JTPA does not explicitly set limits on the amount of relocation assistance that may be given to displaced workers, but there are practical limits. Relocation assistance can be quite expensive, and States have other claims on their Title III grant money. In Arizona, for example, where many displaced workers come from copper mining communities, the State Title III program emphasizes relocation to an unusual degreee. However, because of funding limitations, the program allows no more than $650 per worker in financial assistance. TAA relocation assistance is comparatively generous; up to $800 is allowed for out-of-area job search and an additional limit of $800 is set for defrayal of moving expenses.

Currently, relocation assistance plays a minor role in most displaced worker programs. In a telephone survey of State managers of Title III programs, 22 provided information on relocation assistance; 13 said none of their clients received it. Of the nine that responded positively, only three said they provided the service to 5 percent or more of their clients, or spent as much as 5 percent of their funds on the service. Arizona, with its copper miners, provided relocation assistance to 15 percent of clients; Minnesota, where many displaced workers come from the State's played-out iron mines, provided the service to 10 percent. About 500 workers in these two States combined received relocation assistance in the transition year, October 1983 to June 1984.

Because of the special circumstances in which a strong emphasis on relocation is most appropriate, it is likely that provision of the service will continue to vary a great deal among States. It may be, however, that more workers in a substantial number of States would take advantage of the option if it were offered in more effective form. For planning purposes, the U.S. Department of Labor currently assumes that 150,000 workers per year will be served in Title III programs. For a rough indication of the cost of offering more intensive relocation efforts, let us assume that 10,000 workers per year (distributed unevenly across the country) receive the service. If the cost per worker were midway between $650 (as in Arizona) and $1,050 (roughly the average TAA grant in 1984), the overall program cost would be $8.5 million per year. This is about 4 percent of $223 million, which was the Federal share of Title III program funding in fiscal year 1985. If more effective delivery of all services to displaced workers had the effect of expanding participation, demand for relocation assistance might rise, along with demands for other services.

The figure of $8.5 million for relocation assistance to 10,000 displaced workers (or $17 million for 20,000, and so on) may be compared to the cost to the Federal Government of people's adjusting their taxable incomes by subtracting job-related moving expenses. In 1982 (the last year for which figures have been published) taxpayers took adjustments of about $3.7 billion for moving expenses connected with their jobs. If the average income tax rate of 26 percent is applied to this figure, the loss to the Federal treasury was over $900 million. The Federal income tax moving adjustment is of very limited help to a workers in low tax brackets; tax credits are in general more helpful to people in low tax brackets than deductions or adustments.

One option that is not offered either under JTPA or the TAA program is low-cost loans to displaced workers to cover moving expenses. A loan has the advantage of encouraging relocation when that seems to be the best option, without the public's paying for a move that the worker might undertake anyway.

Relationship of the Interstate Job Bank System to Relocation

Theoretically, a nationwide computerized job bank and job-matching system might be helpful to workers contemplating relocation, since it could acquaint jobseekers throughout the Nation with current job openings, and acquaint employers with applicants who may fit their needs. Such a system was authorized by JTPA but does not yet exist, although the Labor Department's Employment and Training Administration (ETA) has taken some steps in this direction. Two considerations suggest caution in trying to make the Interstate Job Bank listings more comprehensive and more fully automated: 1) the cost of doing so, which has not yet been estimated; and 2) questions as to how much the service would be used. On the other hand, a current, complete system of job listings might serve a broader range of jobseekers, and do it more effectively, than the partial system that now exists.

The Interstate Job Bank in Albany, New York, was opened by ETA in July 1984, replacing the 5-year-old Interstate Clearance System. The bank operates as an exchange center for job orders in State ES systems throughout the country. Evidence of expanded coverage over the old system is that 44,700 job openings were listed in the bank in 1984, compared with 1,500 the previous year. The Interstate Job Bank is not, however, the complete nationwide system envisioned in the law. It is quite limited in coverage, has no job-matching features, and is by no means fully computerized.

Listings with the Albany Interstate Job Bank now consist largely of hard-to-fill jobs, most of them professional and technical, selected for inclusion by State ES systems. The idea behind the selection is that the bank serves workers considering relocation, and lower level jobs are thought to hold little attraction for people considering moves (and, conversely, blue-collar workers without special skills do not ordinarily consider relocation).

No attempt is made in the Interstate Job Bank to match job orders with clients whose applications are on file in ES offices throughout the country; instead, job matching is done in the local ES offices. Connections between the State systems and the interstate bank are only partly computerized. All but six States send in their job orders by mail, and all but one receive the listings back by mail; only Nevada has two-way telecommunications links with the Albany center. Allowing time for mail deliveries and updating of the listings, the turnaround time from State ES systems to the interstate bank and back again is at least 8 days, probably more often 10. A one-way telecommunications link, such as five States now have to the bank, can reduce the lag time to as little as 2 or 3 days. A two-way link, like Nevada's, allows same-day communication.

Two questions are at issue in upgrading the present Interstate Job Bank. One is faster communication, so that job orders are listed quickly and removed quickly when the jobs are no longer open. The other is broader coverage. An on-line, instantly reactive, dial-up job bank system, covering all the jobs in the ES systems, is feasible technologically. However, it would require upgrading of automation in State systems. Not all statewide job banks are automated; in those that are, automation is present in varying degree; and the systems are not always compatible. To build a unified system would almost certainly require scrapping some of what is already in place.

No detailed estimate of the cost of a comprehensive, nationwide, computerized on-line system has been made. The costs would have to include not only the hardware (computers and telecommunication lines), but a software system, plus staff time for training, operation, and maintenance. Altogether, the system would clearly cost a good deal more than the mail-in system most States use now, at least for the period when capital investments are being made and training costs are at a peak. In 1984, the Interstate Conference of Employment Security Agencies estimated that it would require an investment of $241 million over 5 years to bring the data processing equipment of all State Employment Security systems up to date; this figure includes only the cost of the hardware (modern mainframe computers, desk terminals, and disk storage technology). The estimate covered data processing needs for unemployment insurance and labor market information as well as for the Employment Service.

One alternative for improving the existing Interstate Job Bank is for all States to transmit data one or both ways by telephone line, rather than by mail, as most do now. This could reduce delays in listing and removing job orders. No cost estimate of this alternative is available. Another, more fundamental, alternative would be to put efforts first into upgrading State job banks and matching systems. At present, Missouri is the only State with a fully automated "paperless" system. If other States developed similar systems, communication among them on job openings and qualified applicants could be accomplished either by networking the State systems or, in a more rudimentary fashion, by making each State system available for electronic query by an office in any other State. In either case, a degree of commonality would have to be designed into all the State systems. As noted above, the capital cost of installing modern equipment in all States has been estimated at $241 million over 5 years. This amounts to $48 million per year, and is about 6 percent of the current $770 million annual budget for basic services in the ES system. The costs of telecommunication equipment, software development, and staff training time are not included, but neither are the savings in operation and maintenance that ES systems probably would reap from using modern equipment.

The principal criticism of a nationwide, comprehensive, computerized job bank is its potential cost in relation to benefits. Since the ES system is entirely federally supported, upgrading the present interstate bank (or intrastate banks, for that matter) would require either added Federal funds or a redirection of present resources, with possible sacrifice of other ES services or closure of some ES offices. Federal support for ES and unemployment insurance is provided through a system of trust funds. Possibly, job bank improvements might be funded through the use of trust fund money without necessarily raising taxes directly. However, the issue is complex and would require study. A significant question is what type and what level of improvement would be worth the cost, regardless of how funded.

It is not certain that an improved interstate bank would improve the functioning of the labor market, since many of the job orders flowing into ES offices call for very limited skills and pay low wages. These jobs often have limited appeal even for local workers, not to speak of workers in distant places. Hard-to-fill professional and technical jobs that might have national markets are already entered into the Interstate Job Bank. Whether even these jobs listings are attractive to workers considering relocation is uncertain; often the jobs are hard to fill because the pay they offer is relatively low. In addition, it may be questioned whether there is a need for professional jobs to be covered in a publicly financed labor exchange system, since there are many private exchanges (including nonprofit ones, such as professional associations) serving them.

An argument in favor of broader coverage of listings is that blue-collar and other lower paid workers are often more willing to relocate when they are given practical help in getting jobs at the other end. Adequate information about job openings, although not sufficient by itself to encourage relocation, is one part of the necessary help. An interstate bank that lists a broad range of jobs might be used cooperatively by ES offices and displaced worker projects to encourage relocation out of depressed areas into areas where jobs are going begging. The enhanced effectiveness and reputation of a more comprehensive, quickly reactive interstate ES system might attract more job orders from employers, leading to further improvement of the system. The same might be true of the intermediate step of up-to-date computerization of intrastate job banks.

Some bills before the 99th Congress call for greater attention to upgrading the Interstate Job Bank or intrastate banks. One (H.R. 670) would authorize $50 million per year for 4 years to develop and implement computerized job bank systems in each State, using software that is compatible with other systems in so far as possible. Another (S. 1033) calls for establishing a nationwide job bank and job-matching program in connection with employment services for veterans.

Another bill (H.R. 1219) takes a different approach, calling for a study to determine if the benefits of a highly sophisticated national job bank would outweigh the costs. The proposal would direct the Secretary of Labor to submit a report to Congress on such a bank's feasibility and costs, containing information on: 1) the extent to which the nationwide job bank and job matching system authorized under JTPA could be expected to increase employment opportunities in each State; 2) the estimated cost of making such a system fully operational; 3) the extent to which development of the system would require changes in the existing ES operations of each State; and 4) the feasibility of using nonprofit privately operated job-referral services for low-skill jobs in low-wage industries, rather than using the State ES offices or a nationwide computerized job bank and matching program. Any study of the benefits of an automated national job bank should compare a centralized, national system with several ways of linking individual automated State systems.

Wage Supplements

Many displaced workers find rapid reemployment only in jobs that offer substantially lower pay than their old jobs. This is a common burden of displacement. In recent years, at least 30 percent of adult workers who found new full-time jobs after displacement took pay cuts of 20 percent or more. Temporary, partial supplements to the wages on a new job have been proposed as a way to ease the transition for some displaced workers.

If temporary supplements to wages on lower paying jobs were available, some workers might be inclined to seek reemployment sooner, with the benefit to themselves of getting back to work, getting experience in new jobs, and gaining time to recoup some of their former earning power. Additional benefits to society might include a smaller overall bill for income support payments. This outcome is not certain, however; the cost of wage supplements might exceed present costs of income support programs. There has been very little experience with wage supplement programs—certainly none on a national scale. The only such programs in existence are those in a few company-union contracts which allow the use of supplementary unemployment benefits to temporarily bring wages on a new job close to the level of wages on the old job.

One suggestion for government action is to establish a special trust fund for wage supplements, limited to a fixed transition period and available only to older, more experienced workers. Another is contained in a bill in the 99th Congress (H.R. 758) which proposes, among other things, to offer supplemental payments from the unemployment insurance (UI) trust fund to workers who take jobs at a lower wage than is required under their State's UI law. The payments could amount to as much as 80 percent of the UI benefits an unemployed worker is eligible to collect, and could last as long as a year. No cost estimates are available for these proposals. They might prove to be quite costly, especially if they attracted large numbers of new participants to the Title III program.

A cost estimate for a hypothetical wage supplement program may be roughly calculated. For every 100,000 workers receiving a wage supplement, the cost might be about $70 million per year, assuming that these workers receive 80 percent of the full benefits for which they are eligible. The calculation is based on the average UI benefits received by U.S. workers in 1984 ($119 per week for 15 weeks) and the maximum duration of UI benefits in nearly all States that year (26 weeks). The number of recipients of a wage supplement would depend strongly on the exact terms of the program. With 30 percent of reemployed displaced workers taking pay cuts of at least 20 percent, the number could be high.

A wage supplement program, though novel, might be viewed not as entirely new, but as an alternative use of unemployment insurance to encourage faster reemployment. The program might also be regarded as somewhat analogous to subsidies paid to employers in on-the-job training programs. In any case, because of the large uncertainties as to levels of participation and costs, if Congress is interested in the proposal, a trial or demonstration program might be the most practical first step.

Education and Retraining Under Title III (Issue Area 3, Table 2-1)

Several issues have arisen about education and retraining in JTPA Title III programs, including: 1) uncertainty about how much emphasis is being placed on classroom skills training in Title III projects, 2) possibly providing extended income support for workers enrolled in skills retraining courses, and 3) giving greater attention to the remedial education needs of displaced workers.

Inadequate Data on Formal Training in Title III Projects

In some of the better displaced worker projects, a substantial minority of participants—perhaps as many as 20 to 30 percent—choose training in a new skill or occupation, seeing the retraining as an important avenue to a good job. Depending on local job opportunities, demands for training may vary; it appears that more workers opt for formal training during recessions than during prosperity, when immediate reemployment prospects are good.

Some concern exists, however, that JTPA Title III programs may be overemphasizing immediate placement, at the expense of skills training. Although classroom training is expensive, it may best serve the long-term interests of some displaced workers. With the information currently available, it is difficult to tell how much training and education is being offered in Title III programs. The Labor Department does not require States to provide detailed breakdowns on the number of participants and the funds spent for each of the services provided in Title III projects. The question of whether adequate emphasis is being placed on classroom training services is, therefore, a potential topic for congressional oversight. It seems unlikely that detailed information about the mix of services provided under JTPA will become available unless Congress specifically requires the Labor Department to instruct States to provide the information. This information could be a required component of an expanded State reporting system under JTPA, discussed in a subsequent section of this chapter. (See options 4a, 4b, and 4c in table 2-2.)

Income Support Alternatives for Workers in Intensive Training

For most workers, unemployment insurance benefits are the primary source of income during training. JTPA directs States to exempt displaced workers who are enrolled in eligible training activities from the work-search requirements of the UI system.[8] Many skills retraining courses offered to displaced workers are brief, lasting only a few weeks, in order to fit training and job search assistance into the regularly scheduled 26-week duration of UI benefits.

While these short-term courses may be sufficient for training in some skills, some displaced workers who could benefit from longer, more intensive training courses may not be able to participate without income support lasting longer than UI benefits. Unlike the TAA program, which has provided up to 52 weeks of income support to eligible workers while they are in approved training, stipends for displaced workers in training are rare under JTPA Title III.

Several ways to provide additional income support to displaced workers in longer term training have been proposed in recent Congresses. Some proposals would give supplemental Federal unemployment compensation to unemployed workers who continue in JTPA-funded training after their regular UI benefits expire. Another approach is to encourage States to expand eligible training activities for workers receiving UI benefits. Still another approach is to permit displaced workers to use penalty-free disbursements from Individual Retirement Accounts for tuition expenses while they are training. Finally, some bills would give displaced workers and displaced homemakers greater access to Federal student aid assistance.[9]

If Congress wishes to pursue the concept of offering additional income support to displaced workers in extended training programs, the question of containing the costs could be critical. One way to keep costs down would be to target the available assistance only to those who have demonstrated a commitment or need for extended training. In a targeted approach, eligibility for extended income support probably should be determined for most workers before the half-way point of their regular UI eligibility. (See option 3a in table 2-1.)

If screening of this sort were employed, what would be the likely costs of offering targeted assistance to displaced workers in extended training under JTPA Title III? Assuming that each worker in intensive training needed 1 year of income support (9 months for a classroom training course plus some leeway at the beginning and end of the course), an additional 26 weeks of income support beyond the usual 26 weeks would be needed. If the added income support were equal to regular UI benefits, the additional cost would average $3094 per worker. (While UI payments have been used as the basis for computing costs, it would not necessarily be desirable to fund the program through the UI system; funding through JTPA Title III appropriations or through a separate fund might be more appropriate.)

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[8] The U.S. Department of Labor's Employment and Training Administration issued a directive on implementation of this requirement (contained in Section 302 of JTPA) on June 29, 1983. Section 302 requires states to identify employment opportunities, and associated training opportunities, for groups of individuals eligible for Title III assistance. Acceptance for such training is deemed acceptance of training by the State under Federal laws relating to unemployment benefits. Section 3304 of the Federal Unemployment Tax Act of 1970 indicates that benefits to otherwise eligible individuals should not be denied if the individual is participating in training approved by the State.

[9] See, for example, H.R. 3700, the proposed Higher Education Amendments Act of 1985 as reported by the House Committee on Education and Labor on Nov. 20, 1985. In addition, proposals have been made to encourage workers and employers to establish individual training accounts (ITA) to cover training expenditures should the worker become unemployed. The ITA concept is discussed in ch. 6, and in the continuing education section of this chapter.

The number of people likely to make use of intensive training programs of this sort will fluctuate, depending on general economic conditions and reemployment prospects. However, the demand for training is not unlimited. Even in JTPA projects that emphasize training, generally only about 20 to 30 percent of the participants take classroom training, and, of these, most enroll in short-term courses. If 5 percent of all JTPA participants qualified for the extended income support, the cost of the program would be $23.2 million, assuming (as does the Labor Department for planning purposes) that the Title III program serves 150,000 people nationwide.

Health Care and Displaced Workers in Training

Some displaced workers who would otherwise be good candidates for classroom training may feel it necessary to forgo training when jobs are available, so they can regain health insurance benefits for themselves and their families. Provision of health services to displaced workers, like extended income support, might encourage more displaced workers to take retraining courses.

The issue of medical and health services benefits for the unemployed (and for other people not covered by insurance plans) has been the subject of considerable legislative debate in recent years. Discussion of the issue as it relates to unemployed people in general is beyond the scope of this report.[10] JTPA, in theory, already authorizes States to provide health care for displaced workers participating in Title III training projects. While specific information is not available on provision of health services to Title III participants, it is generally believed that few if any States offer it. JTPA generally places a 30-percent limit on the proportion of Federal funds that can be used for administration and "supportive services" (health care is just one of several "supportive services" permitted under the act).[11] Because 15 percent of the States' share of Federal funds may go to the costs of administration, the effective limit for supportive services (for funds subject to the limit) is 15 percent.[12] In fact, States may spend far less; so far, 6 to 7 percent of the Federal share of Title III spending has gone to supportive services. Given the limited information now available, Congress might wish to address the health services issue, as it relates to participation in training, as one subject of oversight on classroom skills training in JTPA. (See table 2-2, option 4c.)

Remedial Education and the Displaced Worker

Displaced workers with basic educational deficiencies (as in reading, writing, arithmetic, and oral communications) may be seriously hampered in their search for reemployment, and are often unable to participate in training or retraining programs. Up to 20 percent of participants tested in displaced worker projects have shown deficiencies in basic educational skills; some of these workers may require fairly intensive remedial education to correct the deficiencies. Other workers with less severe, yet still serious, basic skills deficiencies might benefit from shorter term courses.

Displaced worker projects can serve as a highly effective delivery system for adult basic education. However, the high promise of Title III programs as a vehicle for providing remedial education is not being met. While specific displaced worker projects often strongly emphasize remedial education, the findings from an OTA phone survey of State Title III program managers suggest that remedial education has not been given high priority at the State level. Only half the States responded to questions about the number of displaced workers receiving remedial education; of these, seven indicated that no Title III funds were spent for remedial education. Even among the States that said they provided remedial education in Title III projects, the percentage of clients served by basic education was usually low. Of the 18 responding States in this category, participation levels among Title III clients ranged from 0.1 to 18 percent. Eleven of these States—or nearly two-thirds—provided remedial education services to less than 10 percent of Title III participants, and seven provided these services to less than 5 percent.

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[10] For a discussion of proposals in Congress related to health insurance benefits for the unemployed in general, see Janet Pernice Lundy and Anne C. Stewart, "Health Insurance: Proposals in the 99th Congress," Library of Congress, Congressional Research Service, Issue Brief IB84067.

[11] The 30-percent limitation is stated in Section 307(a) of JTPA. Section 4(24) defines supportive services to include health care.

[12] Under Title III, only the formula-funded grants to States are subject to the 30 percent limit. About three-quarters of Title III grants are formula-funded, the rest are disbursed at the discretion of the Secretary of Labor. Altogether, the 30 percent limit applies to only one-half of the Federal and non-Federal funds available to a Title III program.

Thus, it appears that only a few States are providing remedial education to clients in Title III projects at a level that even approximates the probable need for services (using the 20 percent figure cited above as a rough indication of need). If Congress desires to place greater emphasis on remedial education in Title III programs, areas that merit attention include: 1) expanding JTPA's performance standards to include improvement in basic education skills as a goal of Title III projects, 2) directing States to excuse unemployed people receiving UI benefits from work search requirements while they are enrolled in intensive remedial education classes, and 3) earmarking a portion of JTPA funds for remedial education in Title III projects.

It is possible that UI requirements in some States make it difficult for displaced workers to take intensive full-time remedial education courses while receiving UI benefits. While JTPA (as noted above) directs States to excuse displaced workers from UI work search requirements if they are enrolled in eligible training opportunities conducted under Title III, displaced workers enrolled in full-time remedial education classes are not explicitly covered by the exemption. OTA's phone survey of State Title III program administrators indicated that several States do not consider remedial education a training opportunity (under the meaning given to it under Section 302 of JTPA) or as "approved training" by the State.[13]

Some concern exists that JTPA's emphasis on successful placements and low costs may discourage projects from offering remedial education. The concern has been greatest in the case of Title II programs for economically disadvantaged people, but it may also be relevant to some Title III projects. For youth programs under JTPA Title IIA, performance measures include employment competencies recognized by the local PIC and completion of schooling, as well as placement in jobs. These measures are not included for adult workers, either disadvantaged or displaced.

How the UI work test or JTPA performance standards affect offerings of remedial education in displaced worker projects is uncertain. It is probable, however, that some workers who could benefit from remedial education are affected adversely. Congress could encourage more attention to remedial education if it explicitly stated that "training" under JTPA includes remedial education, and that improving basic skills in reading and mathematics is considered a positive outcome of training (see options 3b (i) and 3b (ii) in table 2-1).

Another measure to encourage delivery of remedial education as part of displaced worker projects would be to allow or to require a set-aside of a given percentage of Title III funds for this purpose (see option 3b (iii), table 2-1). There are several mandatory set-asides in Title IIA; for example, 8 percent of these funds must be allocated for continuing education agencies, including adult and vocational education. In the same way, a small portion of Title III funds might be allocated to State agencies that provide education in basic skills for adults. For example, States might be directed to spend at least 3 percent of their Title III funds for remedial education. This is much more than most States now spend on remedial education in Title III programs, although less than what is spent in the most ambitious State efforts. (i.e., about 5 percent).

One way to estimate the additional cost of emphasizing remedial education in displaced worker programs is to look at actual costs in some exemplary projects. The Ford/UAW project at the Milpitas, California, auto assembly plant enrolled 770 workers in remedial education—39 percent of the 1,997 who signed up for services. The average extra cost per participant was $245 (it was only $130 per course, but many workers signed up for more than one course). In the Midland, Pennsylvania, project, which offers a range of remedial education services with excellent participation, the extra cost to the project is $97 per participant. Assuming that 150,000 displaced workers were to participate per year in Title III projects, and 20 percent take advantage of remedial education, the cost, at $200 per participant, would be $6 million. This is a little under 3 percent of the Federal appropriations of $223 million for Title III programs in fiscal year 1985.

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[13] In addition to the provision in JTPA, Federal law governing the UI system also directs that otherwise eligible unemployed people can be excused from work-search requirements and still receive UI benefits, if they are participating in any State-approved training—not necessarily JTPA-funded training.

JTPA Information, Reporting, and Monitoring Requirements (Issue Area 4, Table 2-2)

OTA found several areas where current information and reporting under JTPA Title III and other related programs may not adequately support congressional oversight of program activities, identification of budget priorities, or policy formulation. In addition, questions have been raised about the adequacy of Federal guidance and information to States. Four areas of particular concern are:

- Reporting on demand for services in displaced worker programs is inadequate and out-of-date. The Labor Department requires States to provide summary annual reports on JTPA programs, which include figures on numbers of participants and spending levels. These reports could be more helpful to Congress in making budget decisions if they were more timely.
- No reporting is required on the mix of services in displaced worker programs—that is, how many workers receive each service, including job search assistance, vocational skills training, on-the-job training, remedial education, and relocation assistance. Such information could be useful to Congress in judging the effectiveness of the Title III program.
- Reliable nationwide information on permanent layoffs and plant closings (the number occuring each year, the number of workers affected, the geographical location of closings, and the types of industries) does not yet exist. JTPA requires the Secretary of Labor to collect this information and publish it annually, but the effort was not undertaken until Congress appropriated funds for it.
- Some States complain that the Labor Department has given them insufficient direction in implementing JTPA programs, and believe they must be extra cautious in such matters as determining eligibility, so as not to have spending disallowed in audits later. The problem may be temporary, since it will ultimately be "solved" in the audit process, but in the meantime delivery of services to displaced workers in some States may be less than optimal.

If Congress wishes to emphasize these reporting requirements under JTPA more strongly, or to strengthen the Federal role in guiding States in areas of uncertainty, it may choose among several means of doing so, including: 1) legislative guidance through JTPA oversight, to focus attention on congressional and State needs for timely information; and 2) earmarking appropriations for collection and publication of data.

Timely, adequate reports on participation in and spending for displaced worker programs could assist Congress in making appropriations decisions (see option 4a, table 2-2). The Labor Department requires reports from the States on their Title III activities only once a year, covering the period through the end of the program year, June 30, and due 45 days later. Not all reports are submitted in time; collection of data that are reasonably complete for most States may be delayed several more weeks. Congressional hearings on budget and appropriations for the following fiscal year begin in the spring; reports on spending and program activities that do not arrive until near or after October 1, when the new fiscal year begins, are of limited value. Even when the congressional schedule slips, and work proceeds on the new fiscal year's appropriations after the fiscal year has begun, information that arrives so late in the session may not receive much analysis or attention.

Table 2-2.—Options to Improve Information, Reporting and Monitoring Under JTPA Title III

Issue area and options	Relationship to other options	Relationship to current policy	Estimated cost of option to Government
***Issue Area 4**: Improving information, reporting, and monitoring*			
a) Legislative guidance to the Department of Labor requiring more frequent reports from the States on the number of participants and spending levels for JTPA Title III programs.	Quarterly or semiannual reports on Title III programs would help Congress make budget decisions about Title III and conduct oversight of the programs.	This option could be implemented through a congressional directive to the Secretary of Labor to require recipients to submit quarterly or semiannual reports on Title III activities. (Section 165 of JTPA already authorizes this.)	Not calculated but small; some additional project costs would be associated with more frequent report preparation; these data are now prepared annually.
b) Legislative guidance to the Secretary of Labor requiring Title III grant recipients to report on the service mix provided in their projects at least on an annual basis.	Information about demand for and provision of different services (e.g., skills training, basic or remedial education, relocation assistance, reemployment services), would help decisionmakers in Congress and the administration determine whether a full mix of services is provided and would also help in budget and appropriations processes.	Like (a) above, this option also could be implemented through congressional guidance to the Secretary of Labor on implementation of section 165 of JTPA.	Not calculated. Many Title III projects and some States already develop this information. In other cases, this option would require Title III recipients to compile additional information in their reports submitted under section 165 of JTPA, and this would add somewhat to the costs of JTPA administration.
c) Legislative oversight on the extent of classroom skills training opportunities offered in Title III projects, including the question of whether greater emphasis on health care services would increase participation in intensive training.	Because inadequate information exists about the mix of services provided in JTPA Title III projects, oversight process would be made more effective if combined with reporting requirements in option 4b.	Classroom skills training is one of several services JTPA Title III projects are authorized to provide, and for some displaced workers is the best route back to a good job. Some concern exists that classroom training opportunities are given little emphasis in some Title III projects—to the detriment of some displaced workers who might benefit from such training. Also, some displaced workers who would otherwise benefit from intensive training may seek immediate reemployment when available in order to regain health care benefits for themselves and their families. Although JTPA Title III authorizes States to provide health care to Title III participants, it appears that few have done so.	The direct costs of oversight would be small. However, classroom training is one of the most expensive JTPA services. To the extent that oversight resulted in greater emphasis in classroom training in JTPA projects, additional costs could be incurred. Additional costs could also be incurred if more States offered health care services to Title III participants, although a major increase in Federal costs would not occur unless the spending limit (generally 30%) on administrative and supportive services were lifted.
d) Legislative directive (with earmarked funding) to the Secretary of Labor to continue to compile and report on permanent layoffs and plant closings, as required by section 462(e) of JTPA.	Better information about plant closing and large layoffs (including data on the number of closings and workers affected, location of facilities, and types of industries) could be helpful in determining JTPA Title III priorities. In addition, plant-closing information of this sort would be useful if a national program of pre-layoff assistance was adopted.	Section 462(e) of JTPA requires the Secretary of Labor to develop plant closing data, and to publish a report based on this data "as soon as practicable" after the end of the calendar year. Implementation of this provision did not begin until Congress made specific appropriations for the purpose in FY 84 and FY 85. While nationwide data are now being developed, annual updating of the data and reporting may require specific appropriations in the future. The U.S. General Accounting Office is currently conducting a study of large plant closings and mass layoffs on a one-time basis, with results expected in 1986.	Initial appropriations for section 462(e) were $1 million in FY 84 for an 8-State pilot project, and $5 million for FY 85 for expansion of the data compilation process to the remaining 42 States. (The data on plant closings are derived from unemployment insurance data, not actual records on plant closings or layoffs.) Costs for the data would probably be less in the future.
e) Legislative directive to the Secretary of Labor to provide more active guidance to State Title III programs to clarify areas where uncertainties exist (e.g., the question of who is eligible for Title III projects).	This option, while continuing the policy under JTPA of giving the States flexibility in implementing their programs, would clarify concerns of some program managers that they have been given too little guidance about what JTPA permits.	The Department of Labor is authorized by JTPA to provide such guidance.	Not calculated, but direct costs would be small.

SOURCE: Office of Technology Assessment.

The Title III reports that States are required to file are brief and simple. Submitting them quarterly, or at least semiannually, probably would not impose an undue burden. These timely reports could be more useful to Congress than annual submissions. Such reports would have to be interpreted carefully, however, because spending rates for displaced worker programs are not necessarily even, for several reasons (one is that plant closings are sporadic, not predictable, and many States set aside a portion of their Title III funds for contingencies). It might be useful to add information on obligations, as well as on spending, of Title III funds. A telephone survey done in October 1985 by the National Governors' Association showed that, although there was a large carryover of unspent funds at the end of the program year, June 1985, most States had fully obligated their Title III funds by that time. Analysis of figures on obligation of these funds by States, as well as on spending, could be useful to Congress in its budget decisions.

Current information on the operation of the Title III program is especially desirable because demands for services appear to fluctuate with changing economic conditions. Displaced workers tend to seek services less, and probably opt for expensive classroom training less, in good times than in bad. Demands for services may also rise when services are delivered more effectively—for example by rapid-response teams that establish pre-layoff services in plants undergoing closure or mass layoffs. Congress may wish to adjust funding, depending on the uptake of services, the choice of services, and therefore the rate of spending and obligation of funds.

Although JTPA leaves decisions on service mixes to the States (and the States may delegate these decisions to project directors), Congress may wish to be informed on how many workers are getting vocational skills training, on-the-job training, remedial education, relocation assistance, and so on. Without this information, it is difficult to determine the full benefits to workers from this federally funded program, or to identify the need for possible changes in direction. One branch of the Labor Department's Employment and Training Administration does currently collect data, on a sample basis, on participants, service mix, and outcomes in Title III projects. However, the information from these sample surveys is neither detailed enough nor certain enough to give Congress an adequate picture of the mix of services being offered in displaced worker projects. Reports, made at least annually, on how many workers receive specific services, on the outcomes (e.g., placement rates, wages) of various types of services, and how much money the program is devoting to each service could help to fill the information gap (see option 4b, table 2-2).

Another information gap that may be of concern to Congress relates to plant closings. Directors of Title III programs in a number of States believe that plant closings have been frequent throughout the economic recovery, and want to assure early delivery of services to the affected workers. Despite JTPA's requirement of annual reports on plant closings, no nationwide compilation is yet available. Congress appropriated $1 million in fiscal year 1984 for a pilot study of plant closings, based on unemployment insurance records, in eight States; in 1985 another $5 million was provided for a full 50-State study. The Administration proposed rescission of the latter sum, on the grounds that economic recovery made a plant-closing study unnecessary. Congress did not approve the rescission, and the full study is reportedly going forward. Results of the study may be useful to Congress in considering whether further special attention to plant closings is warranted (e.g., as in the proposals to require or encourage early warning of plant closures and mass layoffs). Annual studies, should Congress wish to continue them, may depend on the provision of specific funding directives in the appropriations process (option 4d, table 2-2).

JTPA assigns the Federal Government a minor role in the direction of training and employment programs. Congress may, however, wish to consider whether the State programs would operate more effectively if Federal guidance were more specific on items likely to be reviewed in audits (option 4e, table 2-2). Examples are definitions of eligibility for displaced worker projects, and acceptability of various kinds of expenditures as part of the State match for Title III grants. Once a number of audits has been completed, such questions may be resolved. But meanwhile, some State program managers may be imposing unnecessary restrictions for fear of an audit; some JTPA project directors say that service to clients is hampered because of State-imposed restrictions and red tape. State JTPA programs might benefit from clearer guidance beforehand.

A positive contribution the Federal Government can make to displaced worker programs is in information sharing and evaluation of the performance of programs. The Department of Labor's ETA supports organizations such as the National Governors' Association (NGA) and the National Alliance of Business (NAB) in bringing State JTPA officials together for information sharing on JTPA programs. Federal support for all information sharing activities under JTPA cost about $3 million per year, of which only part is related to Title III activities. A useful addition to these activities might be to create a continuously operating information clearing-house (either within the Labor Department itself or through the NGA or NAB) which could provide States with up-to-date information on how States are handling common problems.

ETA also undertakes several kinds of evaluation efforts which can be useful in monitoring training programs, and in assessing the possible need for changes. Among these activities is support for contractor studies of individual projects, including a report on model projects. A long-term evaluation of the impact of JTPA programs, comparing participants with similar nonparticipants, is planned. Estimated funding for ETA evaluations was $8.6 million in fiscal year 1985; the figure includes evaluations of the entire $3.8 billion JTPA program, not just Title III. The Administration has requested $11.3 million for ETA evaluation activities in fiscal year 1986.

Trade Adjustment Assistance

TAA, established in 1962 and liberalized in the Trade Act of 1974, was intended to provide compensation and adjustment services to workers who lost their jobs from the consequences of foreign competition. Though much reduced from its height in 1980, when spending reached $1.6 billion and nearly 600,000 workers were certified as eligible for services, TAA was still a fairly substantial program in 1985. (Spending for the program declined sharply after Congress redefined and limited TAA income support payments in the Omnibus Budget Reconciliation Act of 1981.) Assistance to workers was funded at about $71 million in fiscal year 1985, including a $26 million appropriation for training and relocation, and estimated outlays of $45 million for income support. A parallel program of financial and technical assistance to firms losing business because of foreign competition was funded at $25 million, plus loan guarantee authority of $15 million. As has been noted, TAA's authorization technically lapsed in December 1985. However, some TAA services apparently can be provided under a continuing resolution signed into law by President Reagan on December 19, 1985 (Public Law 99-190). This law continues TAA funding for retraining, job search and relocation assistance, but not income support, through the end of fiscall year 1986.[14]

Congressional interest in the program remains high, and additional consideration of TAA in 1986 is likely. The conference committee report on H.R. 3128, the budget reconciliation bill that was still pending when Congress adjourned at the end of 1985, proposes to continue TAA and to fund the program through a small uniform duty on imports.[15]

In addition, at least 13 bills to extend or modify TAA were proposed in the first session of the 99th Congress. Some of these bills would reauthorize current programs with little modification. Others would reauthorize only the worker assistance component of TAA, but not the firm assistance program. Still others would modify the current program substantially, or propose quite different programs.

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[14] This appropriation is provided in Section 101(j) of Public Law 99-190 which appropriates such amounts as may be necessary for continuing activities under Sections 236, 237 and 238 of the Trade Act of 1974 through the end of fiscal year 1986 under the terms of fiscal year 1985 appropriation acts. Activities conducted under the three sections are training, job search allowances, and relocation assistance, but not income support.

[15] The Conference Committee provisions on TAA can be found in Title XIII of H.R. 3128, the proposed Consolidated Omnibus Budget Reconciliation Act of 1985, as contained in House Report 99-453, Dec. 19, 1985.

The principal argument against continuing TAA is that it is difficult, and probably inequitable, to try to distinguish among displaced workers by cause of displacement, and to single out one group for special treatment. The Administration, arguing that Congress should allow the program to die, held that TAA is unnecessary and duplicative, because JTPA programs offer adequate services to all displaced workers, whatever the cause of their displacement; and that the unemployment insurance system provides sufficient income support to all unemployed workers. On the other hand, it is argued that TAA assists workers who are paying the price for a national policy (removal of trade barriers) that benefits society as a whole. Also, the program may ease protectionist sentiment among workers in trade-affected industries.

For eligible workers (those certified as having been displaced due to increased imports of directly competitive products) TAA has provided some significant extra benefits beyond those offered under JTPA Title III. TAA income support payments (set at the level of unemployment insurance benefits) has lasted as long as 18 months for workers in training, and relocation assistance has been more generous than under JTPA. Thus, TAA support has enabled some workers to complete longer term training than they otherwise could have afforded, and has encouraged some relocation out of depressed areas. In fiscal year 1984, 35,000 workers received income support payments, 6,538 entered TAA-assisted training, and 3,120 got relocation assistance. (The amount of overlap in these figures is not known.) If Congress chooses not to reinstate the program, some TAA-eligible workers can be served in JTPA Title III projects, although not necessarily at the same level of service.

ASSISTANCE TO DISPLACED HOMEMAKERS

In the Carl D. Perkins Vocational Education Act of 1984, Congress demonstrated a strong interest in providing Federal support for programs serving displaced homemakers. The act authorized spending of up to $84 million per year on services specifically designated for single parents and homemakers, including displaced homemakers. For fiscal years 1985 and 1986, Congress appropriated $63 million for Vocational Education (Voc Ed) grants serving this targeted group.

Of the $63 million in Voc Ed grants set aside for single parents and homemakers, an undetermined but probably quite large share will go to programs serving displaced homemakers. Records on past Federal spending targeted to displaced homemakers are incomplete, but CETA[16] and Voc Ed funds combined probably never exceeded $8 to $10 million per year. (See chapter 10 for details.) Even so, the increased funding is a comparatively small sum for a training, education, and employment program open to a population of millions, as the following comparisons with CETA and JTPA indicate.

No estimate has been made of how many single parents and homemakers there are, but displaced homemakers alone probably number over 2 to 4 million (depending on how the term is defined). Supposing that all these people were to participate in the new Voc Ed program, and that two-thirds of the available funds were spent on displaced homemakers, only $10 to $21 per person would be available. The comparable figure under CETA in fiscal year 1980, when approximately $4 billion was spent for general employment and training programs open to 16 million disadvantaged workers, was about $250 per eligible person. In fiscal year 1985, when $223 million was appropriated for the JTPA Title III program, and the eligible population of displaced workers was probably about 3 million, the comparable figure was about $75 per person. These figures are given only for the sake of comparing overall funding levels relative to the size of the targeted populations. They are not intended to suggest that 100-percent particpation by any group is realistic. Moreover, participation rates and the demand for services may vary substantially among the groups.

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[16] The Comprehensive Employment and Training Act.

Vocational education programs under the Perkins Act were just gearing up in 1985; it was still too early to identify all the major policy issues that might arise under the new law. One issue already under debate, however, is whether and how to amplify the extremely sparse data about displaced homemakers—how many there are, their characteristics (e.g., age, family size, income, cause of displacement), the level and kinds of services provided to them, and program outcomes (e.g., training completed, placement in jobs). Another issue likely to come up is whether the State administrators in charge of the women's programs under the Voc Ed act are in fact able to exercise the authority the law grants them, and are actually dispensing the funds that the law sets aside for these programs.

Another major Federal program that serves some displaced homemakers is JTPA. While the services provided under JTPA are similar to those that can be offered with Voc Ed funds, the emphasis is different: JTPA stresses placement in jobs more heavily, while the Voc Ed program emphasizes education and training. Also, as discussed above, funding for displaced homemaker programs under the Perkins Act, though much increased from previous levels, is still comparatively small. Both the JTPA and Voc Ed programs are important sources of funding for displaced homemaker projects.

OTA's review of service to displaced homemakers under JTPA indicates that it is at a modest level so far. In 1984, 57 of 355 displaced homemaker projects responding to a survey reported that they had JTPA funding, and about 10 percent of the projects' funding came from this source. Issues of interest to Congress in looking at the relation between JTPA and services to displaced homemakers might include: 1) eligibility of displaced homemakers, under both Title IIA and Title III; and 2) relations between displaced homemaker projects and the JTPA system (i.e., State JTPA program managers, local directors of Service Delivery Areas, and local PICs).

An issue relevant to both the Voc Ed and JTPA programs is the special barriers faced by displaced homemakers who are interested in training or education. Unlike the majority of workers displaced from paid jobs, most displaced homemakers have no unemployment insurance for income support during even a brief training course. Furthermore, few have income from spouses or other family members to rely on. Although supportive services and training allowances for trainees in acute economic need are authorized in both the Perkins Act and JTPA, they have not been much used in either program. Competition for student financial aid, another possible source of income support, is keen; and the aid is often more readily available to young people going directly into college from high school than to displaced adults entering or reentering training in preparation for a job.

The Perkins Vocational Education Act and Displaced Homemakers

Information

Current, consistent national information on displaced homemakers and the programs that serve them is not available. States could be asked to provide such information under the Perkins Act, but the Administration has not done so. Thus, if Congress wishes to see the development of such data, it may have to consider ways of mandating it, such as requiring routine reporting by the States or instructing the U.S. Department of Education to undertake studies of the programs serving single parents and homemakers, including displaced homemakers.

Little systematic information has ever been collected about displaced homemakers or the projects created to serve them. Nationwide estimates of the number of displaced homemakers vary widely according to the definition selected (e.g., whether women under 35 years old are included or excluded). Many State vocational education agencies do not have reliable data on how many displaced homemakers reside in their State. Even less information is available about single parents and homemakers (the group entitled to set-aside funding under the Perkins Act). Systematic evaluations of the effects of displaced homemaker programs have not been conducted, even though some programs are now more than 10 years old; there are scarcely any reports even of outcomes (e.g., how many participants found jobs and at what wages, how many entered training, how many completed training, or how many found jobs related or unrelated to training).

The Perkins Act does not explicitly require any routine reporting from States on numbers and characterisitics of single parents and homemakers (including displaced homemakers) receiving assistance from Federal Voc Ed grants, of services provided, or of outcomes. The U.S. Department of Education is not requiring such reports. Department officials contacted by OTA say that the reports are unnecessary, and would be inaccurate and intrusive if required. In general, the Administration opposes Federal requirements for reporting of data not considered essential to an agency's mission or demanded by law.

A number of State administrators of Voc Ed women's programs (the State Sex Equity Coordinators) consider it essential to give Congress a factual basis for deciding whether the needs of single parents and homemakers are being met in accordance with the law, whether the programs serving them are effective, and what spending levels are appropriate. Some State officials are taking the lead in developing a data collection system that could be used to build a consistent set of statistics. A number of States may participate in the system, but it is not likely that all will.

Another alternative would be to require a special study on the characteristics of services provided to single parents and homemakers. The Perkins Act directs the U.S. Secretary of Education to conduct applied research on aspects of vocational education emphasized in the act; one of these is effective methods for providing quality vocational education to target groups, including single parents and homemakers. In mid-1985, the Department had no plans underway for an applied research study on the topic of single parents and homemakers.

The Perkins Act also unequivocally requires a national assessment of vocational education assisted under the law, through independent studies and analysis and in consultation with Congress, to be delivered by January 1, 1989 (9 months before the Perkins Act is due to expire).[17] A description and evaluation of the vocational education services delivered to target groups, including single parents and homemakers, must be included in the assessment.

Intent of the Set-aside

The Perkins Act places substantial emphasis on set-asides, or the targeting of portions of the grants to States' special populations. These set-asides amount to 57 percent of the grants and, for some groups, are entirely new. The set-asides, especially the 8.5 percent for single parents and homemakers, were adopted over the strong opposition of much of the vocational education establishment. Under the old Voc Ed act, displaced homemakers were named as a target group, but no specific amounts were designated for services to them. As programs under the Perkins Act get underway, Congress may wish to exercise a considerable degree of oversight on whether the set-aside provisions are being implemented in the way the law prescribes.

A potential topic for oversight is whether the Sex Equity Coordinators are able to wield the authority the law gives them to administer the single parents and homemakers programs, and whether the set-aside funds are reaching their intended beneficiaries. Suppose, for example, that a State allocates Federal grant funds to vocational education in secondary and postsecondary schools by the usual formulas, with an extra effort to enroll single parents or homemakers in an attempt to meet the 8.5 percent "quota," but with no attempt to set up special programs for the group. Congress may wish to assure itself that States are using the specified parts of their Federal grants to "meet the special needs" of single parents and homemakers and other targeted groups.

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[17] The act specifies that the National Institute of Education in the U.S. Department of Education shall carry out the study. However, the Institute was not re-authorized in 1985, and the Department intends to let it expire. The Department proposes to carry out the mandated study in its Office of Policy, Budget, and Evaluation.

A different but related subject for oversight is whether the States are able to use this large infusion of new funds effectively. The eligible population, though uncertain in numbers, is certainly very large in relation to the funds. But are those eligible aware of the programs? Are they seeking services? Is the system able to absorb the new funds efficiently and provide services that are genuinely helpful and in demand? These are some of the questions that Congress might want to pursue.

The Job Training Partnership Act and Displaced Homemakers

Eligibility

Although Congress did not define displaced homemakers as a principal target group for JTPA programs, they are specifically mentioned in the law as one of the groups facing employment barriers and therefore eligible for some services. Because of the various eligibility criteria in the law, however, it can be difficult to use JTPA funds in projects designed to serve the specific needs of displaced homemakers.

Large numbers of displaced homemakers are poor enough to meet JTPA's definition of disadvantaged, and therefore would be eligible for service in most Title IIA projects. The problem is that many displaced homemakers, because of their lack of confidence and experience in the job market and their sudden loss of personal and financial support, do better in projects designed to meet their needs specifically than in larger employment and training projects serving a variety of clients.

In addition, if employment and training projects accept only women who meet the income criteria for Title IIA, they exclude many others who need and could benefit from their services. Some displaced homemakers exceed the income limits because their losses of income were recent, and their incomes before they became displaced were too high. Others may be better off, but still need the counseling, assessment, and job readiness training that a displaced homemaker project can provide. JTPA does provide for Title IIA services to certain groups, including displaced homemakers, who exceed the income limits; roughly 10 percent of funds available to Service Delivery Areas are set aside for this purpose. According to early reports, however, most States are not using the 10-percent-window money to provide services to these groups.

A few States are serving displaced homemakers under Title III, which has no income limitations. JTPA gives States a great deal of latitude in defining eligible dislocated workers, and some consider displaced homemakers to fit under the category of long-term unemployed workers who are not likely to find reemployment in the same or similar occupations.

Relations With the JTPA System

Altogether, it is hard for many projects specializing in serving displaced homemakers to apply for and get JTPA funds. The biggest difficulties reported by project directors, in addition to the tangle of determining eligibility, are: 1) that project staff lack information and are outside the JTPA system, and 2) that PICs are not interested in funding special programs for special populations. The "outsider" problem may well disappear over time, but the disinclination of PICs to fund projects for special groups could pose a continuing difficulty for displaced homemaker projects, since most of the projects are founded on the idea that their clients need a special set of services.

The eligibility and special population problems might usefully be considered together. If projects serving only displaced homemakers are able to get JTPA Title IIA funding, and if States allow services to 10 percent of the clients of these projects without regard to their income, then many of the barriers that displaced homemakers face in taking advantage of JTPA services would be lowered. This might be an appropriate subject for legislative guidance through JTPA oversight.

Alternatively, Congress might wish to encourage or direct States to serve displaced homemakers projects funded under Title III. This would simplify the eligibility problem, since there are no income limits in Title III. A number of States have expressed interest in serving displaced homemakers under Title III, and some have sought information from the States that are already doing so, such as Florida, Pennsylvania, and New York. On the other hand, if more effective delivery of Title III services is developed (e.g., by establishing a service such as Canada's IAS, discussed earlier in this chapter) participation of mainstream displaced workers might rise markedly. Quite possibly, funding for the Title III program might have to be increased if another large group (2 to 4 million displaced homemakers) were unequivocally made eligible.

Income Support for Displaced Homemakers in Vocational Training or Education Programs

The Vocational Education Act amendments of 1978 (now superseded by the Perkins Act) mentioned displaced homemakers specifically as a group eligible for income support during training, in cases of acute need, but anecdotal reports indicate that it was seldom provided. The Perkins Act does not mention displaced homemakers in connection with income support, though there is a general provision for stipends in cases of acute economic need which cannot be met under work-study programs. The Perkins Act does specifically provide for supportive services, including day care and transportation costs for single parents and homemakers in training, and for scheduling and organizing training programs to make them more accessible to single parents and homemakers.

Under JTPA Title IIA, 30 percent of spending may go for a combination of administrative costs and costs of supportive services and needs-based income payments. There is a 15-percent limit on administrative costs, so that at least 15 percent is theoretically available for supportive services and income payments. The limit can be waived under certain circumstances, such as a high local unemployment rate. Under Title III, there is a roughly similar but less stringent limit on costs of supportive services, wages, allowances, stipends, and administration; the limit applies to no more than half of the combined Federal and non-Federal funds available to a Title III program. In the first years JTPA programs were operating, substantially less than the limit was spent for supportive services and income payments; 10 to 11 percent of Title IIA funds and 6 to 7 percent of Title III funds were spent for these purposes. It is not known how much, if any, of what was spent went to displaced homemakers.

Should Congress wish to encourage the provision of income support to displaced homemakers in training, Voc Ed grants and JTPA programs could be used to deliver this service. The UI system, which has sometimes been proposed as both the funding source and delivery system for extended income support during training for mainstream displaced workers, is not available to most displaced homemakers. Legislative guidance, through oversight hearings, is one way Congress might encourage or direct greater emphasis on income support for displaced homemakers in the Voc Ed and JTPA programs. However, because of the dearth of data about the numbers of displaced homemakers demanding services, and how many are interested in training, there is no solid information base for estimating participation and the costs of increased income support.

Assuming income support was provided to displaced homemakers in training at the level of average UI payments ($119 per week in 1984), the cost would be about $3,100 per person for 26 weeks, or $6,200 for a year. Program costs might be estimated at $31 to $62 million for every 10,000 people who took advantage of the program. Such costs are high in relation to present levels of funding; the Voc Ed grants set aside for single parents and homemakers were funded at $63 million for fiscal year 1985. Assuming 15 percent is the practical limit for supportive services and imcome payments under JTPA, about $33 million was available to displaced workers for these purposes under Title III in fiscal year 1985, and approximately $280 million to disadvantaged workers under Title IIA.

Considering the lack of experience with an income support program for displaced homemakers in training, its possible high cost in relation to present sources of funding, and the scarcity of information about displaced homemaker programs, a full-scale national program may be premature. An alternative might be for Congress to require the Department of Education to develop improved information on existing displaced homemaker programs supported by Voc Ed grants, including numbers of clients and services provided. At the same time, Congress might wish to consider special funding for a pilot program, offering income support to displaced homemakers enrolled in training courses needed for employment. Evaluation of the pilot project could help in identifying likely participation rates and costs for future projects.

Options for Assistance to Displaced Homemakers (Issue Area 5, Table 2-3)

OTA's assessment of experience so far with Federal programs offering assistance to displaced homemakers identifies several problems that have already arisen and others that may arise in bringing reemployment and retraining services to this group. If Congress wishes to encourage greater delivery of services to displaced homemakers, it might consider the following actions:

- Encourage collection of nationwide data on single parents and homemakers, including displaced homemakers, served under the Carl D. Perkins Vocational Education Act. One option would be congressional direction to the Department of Education to collect data from States through routine reports, or to undertake a special study. This might be done in one of several ways: through legislative guidance in oversight hearings, by direct communication with the Department of Education, or through the appropriations process (option 5a (i), table 2-3).
- Assure that State Sex Equity Coordinators who are in charge of Voc Ed women's programs have the authority to establish the special programs for single parents and homemakers that are called for in the law, and that the set-asides in Federal funds which the law provides for this group are reaching the intended beneficiaries in a way that "meets their special needs" (option 5a (ii), table 2-3).
- Clarify that projects serving only displaced homemakers may be funded under JTPA IIA, and assure that States are allowing the use of 10-percent-window money to serve groups that face special barriers to employment (including displaced homemakers), without regard to income (option 5b, table 2-3).
- Consider taking action that would either clarify to States that they may consider displaced homemakers eligible for services in JTPA Title III programs, or would direct them to do so. Clarification might be accomplished through legislative guidance in oversight hearings. A direction to States to consider displaced homemakers eligible for Title III services would probably require a change in the law.
- Consider providing income support to displaced homemakers in job training and education programs. One option would be to first require better information on existing displaced homemaker programs, including participation rates and types of services provided. While this information is developed, Congress might also wish to consider funding a pilot project providing income support to displaced homemakers undergoing vocational training needed for employment.

Table 2-3.—Policy Issues for Displaced Homemakers

Issue area and options	Relationship to other options	Relationship to current policy	Estimated cost of option to Government
Issue Area 5: Improving delivery of assistance to displaced homemakers			
a) Options related to the Carl D. Perkins Vocational Education Act			
i) direct the Department of Education to collect data from the States on single parents and homemakers, including the number of displaced homemakers and the extent of services provided them under the Carl D. Perkins Vocational Education Act of 1984; and	Option could be implemented independently or in conjunction with other aspects of the Perkins Act that relate to development of information about adults in vocational education. Option also could be implemented in conjunction with (ii) below.	The Perkins Act targets funds for provision of vocational education opportunities for single parents and homemakers. It also authorizes (but does not require) the Department of Education to develop data in this area on an annual basis. The Perkins Act specifically requires an independent evaluation of services provided to targeted groups to be completed in 1989.	Costs of requiring the data would add somewhat to State administrative expenses under the vocational education program.
ii) conduct oversight, with legislative directives as needed, to assure that State program sex equity coordinators have the authority to establish special programs for single parents and homemakers as called for in the law, and that set-asides established by the law are reaching the intended beneficiaries.	Annual reporting of information on single parents and homemakers (option (i) above) could be useful in implementing this option.	The Perkins Act establishes a set-aside for single parents parents and homemaker programs and gives sex equity coordinators authority to administer the programs. This is a substantial change from the prior program, which did not contain set-asides for targeted groups. Because the set-aside approach is new, some States may find it difficult to comply.	Not estimated, but small.
b) Options related to JTPA			
i) provide legislative guidance to clarify that projects serving only displaced homemakers can be funded under JTPA Title IIA; and	Could be implemented through option 4e, pertaining to the issue of overall guidance to States under JTPA.	JTPA, while not targeting displaced homemakers as a principal group for services under the law, does identify displaced homemakers as a group eligible for some services under the Title IIA due to the employment barriers they face.	To the extent that Congress encourages States to provide greater services for displaced homemakers under Title II and Title III of JTPA, additional costs under JTPA could be incurred.
ii) under JTPA, provide legislative guidance to clarify that displaced homemakers can be served under Title III, or direct the States to serve displaced homemakers under Title III.	Legislative guidance could be implemented under option 4e, pertaining to overall guidance to States under JTPA. A directive to the States requiring service to displaced homemakers under Title III probably would require a change in the law.	JTPA does not explicitly identify displaced homemakers as a group to be served under Title III, but several States are doing so, considering them as long-term unemployed.	To the extent that Congress encourages States to provide greater services for displaced homemakers under Title III of JTPA, additional costs could be incurred.
c) Consider providing income support to displaced homemakers in training courses needed for employment, based on information from: i) studies required from the Department of Education on existing displaced homemaker programs, including number of participants and services provided; and ii) a pilot project, funded by Congress, providing income support for displaced homemakers in training courses in a few selected projects, furnishing information on participation rates and costs.	Option (i) could be implemented in conjunction with option 5a(i), relating to collection of data on displaced homemakers.	Both the Perkins Act and JTPA provide for limited income support to trainees in cases of acute economic need. Little income support is being provided under either law.	Costs of income support to displaced homemakers in job-related training could be very substantial, depending on participation rates and level of allowances. Allowances at the level of average UI benefits in 1984 ($119 per week) would cost $3,100 to $6,200 per participant for 26 weeks to 1 year. Program cost would be about $31 to $62 million for every 10,000 participants.

SOURCE: Office of Technology Assessment.

LABOR MARKET INFORMATION AND OCCUPATIONAL RESEARCH NEEDS

Local Labor Market Information (Issue Area 6, Table 2-4)

Whether displaced workers opt for retraining or for immediate job searches, they can benefit from detailed, up-to-date information on the kinds of jobs available in the local labor market. The same is true of projects that offer reemployment and retraining assistance to displaced workers. As a rule, only a small portion of the available jobs in a local labor market are listed with ES. In many States the information provided to displaced worker projects is neither current enough nor detailed enough to give an adequate picture of what occupations are in demand in local labor markets. Some managers of displaced worker programs are not aware, moreover, of the information that does exist, or of how best to use it.

If Congress wishes to place more emphasis on the provision of detailed local labor market information, several options are available, including: 1) legislative guidance through JTPA oversight to focus attention on providing better information at the local level, and on the more informed use of existing data; and 2) appropriation of funds for the specific purpose of improving local labor market information (option 6a, table 2-4).

JTPA calls on the States to design comprehensive, cost-effective systems of labor market information, for the State and areas within the State, that answer the needs of employment and training projects. State agencies, under the technical guidance of the U.S. Department of Labor's Bureau of Labor Statistics (BLS), collect a great deal of information on local unemployment rates, on levels of employment and earnings by industry, and on occupations within industries, much of which is funneled into national employment estimates and occupational forecasts. Some (not all) States collect additional data to show more detail on the occupational patterns of local industries. In these States, ES analysts are able to put together various sets of information from the local to the national level, and thus provide a rough picture of growing, static, and declining occupations within the State; in some cases, the ES analysts develop estimates for local areas. The same kind of data is the basis for State and local occupational projections. Principal users of local labor market information include State vocational education planners, as well as managers of employment and training programs.

Some States (possibly 20) are able to provide reasonably current, detailed information on occupations in demand in at least some of their local labor markets. The data that most States collect in cooperation with BLS may be adequate for at least a fair approximation, but many States lack the funds and the expert staff to do the necessary analysis. With the sharp drop in Federal funding and staffing levels in the ES system since fiscal year 1982, the ES research and analytic staffs in many States have been weakened.

Although JTPA authorizes Federal support for development of State and sub-State labor market information, the Administration approach is to keep Federal spending for this purpose to a minimum. In general, for labor market information needed at the national level (such as the monthly estimates of employment and earnings) Federal spending has risen in the past few years.[18] The BLS plans, however, to reduce funding and detailed coverage in the statistical program that produces estimates of occupational employment by industry; this is the program which a number of States use for developing local estimates of occupations in demand. Moreover, Federal assistance for programs to develop local planning data is slated for cuts. Since 1980, Federal funding for these small programs has stayed flat in current dol-

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[18] This is not true of other statistical programs conducted by the Bureau of Labor Statistics. Aside from labor market information programs, which are funded mainly from the Unemployment Trust Fund, and a major one-time revision of the Consumer Price Index, spending for BLS statistical programs was cut sharply in constant dollars in fiscal years 1981 and 1982, then rose to about the level of fiscal year 1980. The Administration has proposed a 10 percent reduction (constant 1980 dollars) for these programs for fiscal year 1986.

Table 2-4.—Issues in Labor Market Information and Occupational Research

Issue area and options	Relationship to other options	Relationship to current policy	Estimated cost of option to Government
Issue Area 6: Improving labor market and occupational information			
a) Legislative guidance through JTPA oversight to focus attention on the need for better labor market information at the local level, and provision of additional funds for improving local labor market information	Better information about local labor markets could help JTPA project managers, vocational education officials, career counselors, and others make more informed judgments about education, training, and reemployment options that make sense locally.	JTPA authorizes Federal support for development of State and substate labor market information. Federal funding for programs to develop local planning data has remained constant for several years. For FY 86, the Administration has proposed reducing Federal funds for local planning data from $7.3 to $4.3 million. This would reduce the amount of ES staff available to develop and analyze local data.	An estimated $8 to $9 million would be enough to maintain a minimum level of ES staff needed to develop and analyze local labor market data. This compares to $7.3 million for local labor market data in the FY 85 budget, and the $4.3 million proposed by the Administration for FY 86.
b) Provide adequate funds for obtaining and updating qualitative information about jobs.	Qualitative information about jobs is used by educators, career counselors, employment officials, and people making career decisions and therefore is useful in implementing reemployment and education options.	Section 462 of JTPA emphasizes the need for current qualitative information about jobs. For example, funding for the Dictionary of Occupational Titles has declined over the last decade from about $2.6 to $1.8 million in fiscal year 1985.	Restoring prior funding levels would entail modest additional expenditures.
Issue Area 7: Conducting research on the effects of technology on jobs			
a) Direct Federal agencies to evaluate the employment effects of major federally supported technology development efforts.	The evaluation process could provide an early warning system about future technological changes which could affect employment, education, and training programs.	Evaluation of employment impacts of federally supported research is seldom undertaken.	Costs of conducting such evaluations have not been estimated, but would be a minor component of overall Federal R&D expenditures.
b) Direct the National Science Foundation to fund one or more centers for engineering research to focus on alternative work organization and job design in development of manufacturing technology.	Option could lead to increased attention on the part of engineers and engineering students to the potential for better matching of technology development efforts with human capital.	Currently, the National Science Foundation's program for Engineering Research Centers has led to the funding of six centers affiliated with universities. All of the proposals and centers in the area of manufacturing have been oriented toward achieving advanced levels of automation in factories. This option would strike a more balanced approach in the area of manufacturing.	If one center were funded at the level of existing centers, this option would cost $3 million over a 5-year period, or $600,000 per year for each center that is established.

SOURCE: Office of Technology Assessment.

lars, declining in real terms about 30 percent. For fiscal year 1986, the Administration budget proposes a reduction in local planning data funds of about 40 percent—from about $7.3 to $4.3 million. If the cut were restored and adjustments made for inflation, Federal assistance would be in the range of $9 to $10 million. This increase over the requested level could be used to restore and maintain a minimum level of ES staff needed to develop and analyze local labor market data.

Some JTPA projects deal with the lack of information on occupations in demand by commissioning surveys of local employers to determine recent hiring patterns. The results can be useful depending on the sophistication of the surveys. Many projects use performance-based contracts, which put the burden of finding out what occupations and skills are in demand on training institutions; the trainers are not paid in full until an agreed-on percentage of trainees are placed in jobs related to their training.

An idea for improving information about local occupational demand is under development in Colorado, with the support of several other States. Employers in most States are already required to file quarterly reports for unemployment insurance purposes, showing the numbers of employees at the beginning and end of the period and also identifying the employer's detailed industrial classification. When these reports are aggregated, they can show hiring flows by local area and industry, but not by occupation. In the pilot project being planned by Colorado, the employer will be asked to add occupational titles for all employees. Thus, if the projects succeed, the raw data for showing quarterly hiring flows by industry, locality, and occupation will be available.

Some technical and financial difficulties may be involved in this kind of project. Employers may find it very troublesome to assign titles to their workers' occupations, and this problem could delay submission of UI reports and taxes; it might also interfere with employers' willingness to cooperate in surveys sponsored by BLS for national purposes. Costs to the States of aggregating and analyzing the data could be high. However, many analysts and managers in the employment training field are interested in a trial of the idea, because the possible benefits are substantial.

Improving Long-Range Projections of Future Job Opportunities

As a part of its national labor market information programs, the Federal Government develops long-term occupational projections. The projections are used in a number of practical and theoretical ways. For example, vocational counselors and students may use them as an aid in career planning. Educators may use them in planning courses. Job counselors in employment and training projects refer to them in deciding in the kinds of training to offer. Analysts sometimes use them to assess the occupational effects of technological change, and associated long-range shifts in education, training, and employment priorities. A recurring question in employment and training policy has been whether there would be much practical benefit in launching a substantial effort to improve the occupational forecasting system. This question is examined below in terms of both quantitative projections and qualitative occupational information developed by the Labor Department.

Quantitative Forecasting

BLS periodically prepares and updates long-term quantitative forecasts of occupations by industry, using a series of models. In the process, BLS staff make a number of assumptions about future economic activities, technology, and trade. These assumptions are generally based on long-term trends of the past, tempered by expert judgment. However, expert judgment can miss developments that affect the forecasts. For example, few experts predicted the energy crises that would dominate the 1970s, or that the dollar's value would rise so dramatically in the 1980s, and that it would remain high for so many years.

These two examples make another point as well, however. Some trend-breaking events can be at least partially anticipated. In the 1960s, some experts postulated that dwindling petroleum supplies and the formation of the Organization of Petroleum Exporting Countries cartel could have a major impact on energy prices in the 1970s, although few would have predicted the sudden and dramatic nature of the 1973 oil embargo. Similarly, the deterioration of U.S. trade balances began in the 1970s, and while the combination of events that led to the unprecedentedly large trade deficits of the 1980s was perhaps not predictable, it was not unthinkable. While nobody could expect forecasters to pinpoint these major events, sensitivity analysis of occupational forecasts could postulate such events and examine the possible effects. This kind of sensitivity analysis—looking at how model outcomes change when different assumptions are used—would not necessarily yield more accurate forecasts, but it might give policy makers, career counselors, and people making career decisions better insight into the uncertainties and risks surrounding different career choices.

Forecasts can become outdated rather quickly. For example, forecasts published in April 1979 projected that manufacturing would employ over 23 million people in 1985; actual manufacturing employment was only 19.3 million in September 1985, and there are no prospects of its reaching 23 million in the immediate future. Indeed, as discussed in chapter 4, the long-term trend is likely to be flat or declining. Forecasts of employment in specific industries also can fall wide of the mark in just a few years; the April 1979 BLS projections estimated that 590,000 people would be employed in the steel industry in 1985; but steel employment in September 1985 was only 291,000, with few prospects for any increase.

These problems are not due to poor forecasting techniques or tools, nor are they necessarily due to poor judgment. Forecasting—particularly long-term forecasting—is inherently likely to be inaccurate, simply because it is impossible to anticipate all the factors that will affect the Nation's economy in the future. As a result, BLS corrects and updates its long-term forecasts every other year, but even this exercise can leave the forcecasts with significant inaccuracies.

Although the overall accuracy of the long-term projections probably cannot be improved significantly, a few modifications in the current process could result in some incremental improvements over time. Knowledge of the impact of technology in the workplace might be improved if measures of technological change were incorporated into the on-site evaluations and questionnaires used by ETA in updating the *Dictionary of Occupational Titles (DOT)*. This knowledge could serve to improve projections if effectively used by the BLS projection staff. BLS might also improve the projection process by documenting all technological assumptions made within the projection model and evaluating these assumptions when data become available. Sensitivity analysis of major technological assumptions could also be useful in exploring the range of possible effects.

While additional funding might improve BLS's ability to estimate such things as the employment effects of new technologies, policymakers cannot expect great accuracy in occupational forecasts, particularly for the long-term projections. Calls on the part of some vocational educators, employment and training managers, and PICs for very detailed occupational forecasts may be based on unrealistic ideas about what these analyses can reasonably be expected to provide.

Qualitative Occupational Information

In addition to its occupational forecasts the Labor Department provides qualitative information about the nature of different jobs, training requirements for specific occupations, pay scales, and the expected number of opportunities in different occupations. The publications used most widely include the *Occupational Outlook Handbook*, the *Occupational Outlook Quarterly*, and the *DOT*.

Funding for these occupational information publications, and for supporting functions in BLS and ETA, has been declining. Funding for the *Occupational Outlook Handbook*, for example, has dropped over the last few years; the number of jobs reviewed in the handbook was cut from over 300 in the 1978/1979 edition to about 200 in the 1982-83 edition. More occupations are planned for review, however, in the 1986-87 and 1988-89 editions. Although the handbook remains a major source of information about possible future jobs, some job counselors believe that its usefulness declined with the reduction in number of occupations reviewed.

Whether funding is adequate to maintain *DOT* is another concern. *DOT*, consisting of detailed descriptions of thousands of jobs, is a major source of qualitative information about occupations in the United States, and is an important basis for other employment information developed by the Department of Labor (including the *Occupational Outlook Handbook*). Without constant updating, *DOT's* usefulness, and the usefulness of the occupational information series that rely on it, will decline.

The need for current qualitative information about jobs is explicitly recognized in Section 462 of JTPA. The provision calls on the Labor Department to maintain "descriptions of job duties, training and education requirements, working conditions, and characteristics of occupations." ETA plans to update *DOT* in its efforts to fulfill this requirement. Data gathering—finding out what jobs consist of—is planned for new technology-oriented jobs. Existing job descriptions are slated for updates on a rotating schedule. To complete this work, people are being trained for onsite job evaluations. Surveys of additional job sites are planned to check the accuracy and applicability of the onsite evaluations.

Whether these plans will be carried out at the level needed to maintain and update *DOT* will depend on adequate funding for several years. Spending for *DOT*, as reflected by obligations, has declined in the last decade from an estimated $2.6 million in fiscal year 1975 to an estimated $1.8 million in fiscal year 1985. The Administration has requested $1.7 million for this activity in its 1986 budget proposal—a level of funding that may not be adequate to meet the objective of obtaining and updating qualitative information about jobs that is stated in JTPA. Congress may wish to assure that spending for *DOT* is kept at an adequate level to improve qualitative information on jobs (option 6b, table 2-4).

Research on the Effects of Technology on Jobs (Issue Area 7, Table 2-4)

As discussed in chapter 8, technology alone does not dictate the nature of jobs. When new technologies are adopted in the workplace, jobs can be redesigned and work reorganized in a number of different ways. Productivity, the quality of jobs, and the level of unemployment may all be affected by these managerial choices. Better understanding of these issues may help firms improve both their international competitiveness and the quality of jobs.

A focused program of Federal support for research in work organization and job design, and greater emphasis on the dissemination of research results to industry could enhance understanding of these issues. Options relating to such research include: 1) conducting oversight on current research on the subject by Federal agencies, 2) providing support for evaluation of the employment effects of federally supported technology development efforts, and 3) funding research projects or programs on alternative work organization and job design approaches. While the U.S. Department of Defense (DOD) and some other Federal agencies (e.g., the National Science Foundation (NSF)) conduct or support "human factors" research, funding for research on work organization and job design by these agencies is probably quite modest.

Research on technological change and its implications for job skills and vocational education is emphasized in several provisions of the Carl D. Perkins Vocational Education Act of 1984. Among other things, the act specifically directs the Secretary of Education and the National Center for Research in Vocational Education to undertake research activities on "curriculum materials and instructional methods relating to new and emerging technologies, and assessments of the nature of change in the workplace and its effects on individual jobs." As this act is implemented, questions about funding priorities and research commitments related to technological change and its effects on jobs could be a subject of congressional oversight deliberations.

The Federal Government has done little to evaluate the employment implications of its own research and development (R&D) activities. Some federally supported innovations (such as numerically controlled machine tools and computer-aided design) have had significant effects on the workplace in the past. Continuing Federal support for technology development in such areas as programmable automation and advanced computer systems will also result in innovations affecting jobs in the future. While some evaluation of the employment effects of federally supported technology development may have been conducted ad hoc, this is not normally a specific component of the research budgets of Federal agencies.

One way to focus more attention on this issue would be for Congress to direct Federal agencies to conduct evaluations of the likely effects of their major R&D efforts on the nature of jobs and the level of employment (option 7a, table 2-4). There could be drawbacks to this approach: such assessments might be considered as a drag on technological innovation. Also, those most knowledgeable about the research may not be best suited to assess its social implications. An advantage of the evaluations is that they could provide an early warning system alerting decisionmakers to upcoming changes in technologies that could affect employment education, and training needs in the future.

The Federal Government could also provide greater support for research and education on work organization and job design (option 7b, table 2-4). Government support could come through the NSF's program to establish Engineering Research Centers at universities. The goal of the program is to develop engineering knowledge through cross-disciplinary research that would improve the competitiveness of U.S. industry and prepare engineers to contribute to that effort. In the first year of operation of the program, NSF approved six centers to undertake research in several engineering fields. If fully funded, the six centers could receive up to $94.5 million over a 5-year period.

The concept behind these centers is to further fundamental research in engineering, increase the effectiveness of engineering education, and strengthen linkages between universities and industry. So far, all of the proposals for manufacturing-related centers emphasize advanced automation in the factory. Yet people remain the most adaptable element in manufacturing systems. To preserve employment in the relatively high-wage U.S. economy, U.S. firms and industries must maintain or regain competitiveness. A combination of advancing technology and work organization designed to make use of a skilled work force could help to achieve the goals of competitiveness, expanding employment, and providing satisfying jobs. One way to pursue these goals would be for Congress to direct NSF to request proposals for an engineering center with a research mission that focuses on alternative approaches for work organization, and evaluation of the effects of these alternatives on the nature and number of jobs. Taking advantage of its affiliation with a university, such a center could also work towards enhancing recognition among engineering students and faculty of the importance of matching technical designs with skills available in the production work force. If funded at about the same level as the existing engineering research centers, the center would require about $3 million over a 5-year period, or about $600,000 per year.

STRATEGIES FOR FACILITATING WORKLIFE TRANSITIONS

Structural unemployment might be lessened if workers in displacement-prone industries or occupations begin to make transitions to different careers before they actually lose their old job. Often, changes leading to displacement develop over a long time, sometimes several years. While some workers may effectively use the time to find new jobs or develop different job skills that may be in greater demand, most do not. Should more attention be focused on helping currently employed workers manage worklife transitions before they lose their jobs, and, if so, what kinds of measures should be emphasized?

These questions are examined below in three issue areas: 1) improving basic skills among the large number of adults (including many employed adults and many displaced homemakers) with serious educational deficiencies, 2) expanding the role of the continuing education system in helping workers prepare for possible career changes, and 3) considering the potential for retraining active work forces through incentives to employers to offer broader education and training opportunities to blue-collar and lower level white-collar workers.

These issues have broader implications than their potential to help some workers avoid displacement in the future; this is part of the reason why OTA selected them for analysis. A well-trained, highly motivated work force is important to the prosperity of the domestic economy and to the ability of U.S. firms to compete internationally. The pace of technological change requires that many workers upgrade or develop new job skills during the course of their working lives. Due to demographic changes, the burden of making such worklife transitions will increasingly fall on the shoulders of older workers, who as a group have traditionally been disinclined to undertake retraining. Helping workers make occupational or worklife transitions may help U.S. firms to make technological or economic changes that benefit the economy as a whole. If Congress wants to provide more assistance for occupational adjustment, a wide range of options are available. Selected options are summarized in table 2-5 and discussed below. (A separate section of this chapter discusses the role that instructional technology can play in adult education and training.)

Basic Skills and the Work Force (Issue Area 8, Table 2-5)

A sizable portion of the U.S. work force has serious deficiencies in basic education skills (including basic mathematics, reading, writing and oral communications). Workers with such deficiencies often do not advance in their jobs, and have difficulty adapting to technological changes. If displaced, they are usually less able than better-educated workers to compete for new jobs and may have to settle for entry-level or lower skill jobs. Generally, employers are reluctant to hire workers with basic skills deficiencies, since even low-skill jobs often involve reading, writing, and simple calculations. The costs of basic skills deficiencies to U.S. business firms have never been estimated; anecdotal evidence suggests that they are high. Examples of these costs include mistakes in inventories, inability of workers to follow written instructions, and lost time due to increased supervisory requirements.

The need for increased emphasis on basic skills in displaced worker programs has already been discussed. Obviously, however, it is preferable for workers to remedy basic skills deficiencies while they are employed. (Still better, of course, is to learn basic skills in school to begin with.) Several issues related to improving basic skills in the work force are discussed below, including: 1) whether current funding for adult basic education programs is adequate, 2) whether employers and the private sector should play a greater role in such programs, and 3) whether more information is needed about the magnitude of the problem. A separate section of this chapter discusses issues and options related to the Federal role in developing instructional technologies, including technologies used in adult basic education.

The Issue of Funding

Since 1966, the Federal Government has provided grants to States for remedial education under the Adult Education Act (AEA). These

Table 2-5.—Selected Options for Facilitating Worklife Transitions

Issue area and options	Relationship to other options	Relationship to current policy	Estimated cost of option to Government
Issue Area 8: Improving basic skills in the work force			
a) Expand Federal support for State and local adult basic education. Program elements might include 1) increased funding for services and outreach activities under the Adult Education Act (AEA) and 2) development of a long-term strategy to increase participation in the AEA, including goals and related funding levels. Development of a strategy for congressional consideration could be done through a special commission or study.	Options to provide more emphasis on remedial education in JTPA Title III programs are discussed in table 2-1, Issue Area 2.	Remedial education services supported by AEA are undertaken by several thousand organizations at the State and local level. Remedial education services can also be offered under Title III of JTPA, Title II of JTPA, and in some circumstances under programs supported by the Federal vocational education program. Some States also use social services block grants to provide remedial education. In contrast to these programs, AEA services are provided to the public at large, not special populations.	Option 8a would increase appropriations for AEA to the level authorized in FY 85 ($140 million) for the FY 86-88 period (when such sums as necessary are authorized). Full appropriation at the authorized level for FY 85 would cost the Federal Government $40 million more than the Administration proposed in its FY 86 budget request and $38 million more than was appropriated in FY 85. The costs of a long-term strategy for dealing with functional illiteracy are difficult to estimate without better information about the number of adults with a need for basic education, and about goals for a national strategy. The AEA program served about 2.3 million people in 1981; some believe a program two or three times as large would still not reach all adults with basic skills deficiencies.
b) Require regular, systematic surveys of basic skills performance levels for the U.S. adult population, and provide appropriations for this purpose every 3 or 4 years.	Option 8b would be helpful in implementing long-term strategy for improving basic skills, such as proposed in option 8a. Option would also be useful in determining whether basic skills problems are on the increase, as is widely speculated. By some estimates, 20% of the adults in the U.S. have very serious basic skills problems. Among employed workers, the figure may be as high as 15%. These estimates are based on a 1974 survey that has not been updated.	Section 1242 of the Education Amendments of 1978 (Public Law 95-561) specifically authorizes the assessment of the performance of children and young adults in basic skills through a National Assessment of Educational Progress (NAEP). A new, one-time survey of literacy skills covering 21 to 25 year olds is being conducted for the NAEP by the Educational Testing Service, using discretionary Department of Education funds. Results of the NAEP survey are expected in the spring of 1986.	The NAEP one-time survey of 21 to 25 year olds costs about $1.9 million. It is believed that a similar amount is all that would be required to survey an all-aged sample of the adult population, due to efficiencies gained through sampling of a broader section of the population and through use of the NAEP model.
Issue Area 9: Encouraging adults to use continuing education in worklife transitions Selected options are:			
a) Authorize an outreach program to inform and encourage adults to make use of the education and training resources available in their communities.	This option would increase adult awareness of postsecondary educational opportunities, including those for adults in need of remedial education before they could participate in postsecondary education. A separate outreach program for people with very serious basic skill deficiencies may also be needed.	Title I of the Higher Education Act of 1965 originally supported outreach activities for adults that were underserved by educational institutions. This program has not been active since 1980; however, legislation to reinstate adult outreach has been proposed.	A legislative proposal introduced in the 99th Congress, would authorize $50 million for FY 86, and such sums as necessary through FY 91, for postsecondary continuing education grants related to innovation and outreach, and research and development, among other provisions.
b) Authorize targeted educational assistance to workers likely to be displaced. One option would be for State or Federal labor or employment agencies to identify occupations or industries vulnerable to widespread placement. Workers in such occupations or industries would be eligible for preferential treatment in receiving Federal financial assistance for students.	A targeted program of educational assistance could be one of the services offered in conjunction with advanced notification and pre-layoff assistance (options 1b and 1c in table 2-1).	Under current policies, employed adults who are part-time students find it difficult to compete for available Federal financial assistance.	A wide range of alternatives has been proposed in Congress and elsewhere to help workers undertake education as a way to avoid displacement or to save money for future training needs. Many of these proposals would probably not greatly enhance educational opportunities for blue-collar and lower income white-collar workers. A targeted approach might partially overcome this problem. If limited to loan programs, a preference system would have little overall impact on costs. Grants, or other forms of direct assistance, could entail substantial costs.

Table 2-5.—Selected Options for Facilitating Worklife Transitions—Continued

Issue area and options	Relationship to other options	Relationship to current policy	Estimated cost of option to Government
Issue Area 10: Encouraging training and retraining of active work forces			
a) Continue tax treatment for employer provided education programs under section 127 of the Internal Revenue Code, with a stipulation that information continue to be developed on the characteristics of workers who participate in the program.	This option could be adopted either singly or in conjunction with other options for employer training. The section 127 program is one of the few existing incentives by which the Federal Government encourages employed workers to undertake continuing education that is not necessarily related to a worker's current job.	Congress has allowed employees to exclude educational assistance provided under a qualified company program from their taxable income, even when the education was not directly related to their current jobs. This exclusion will not apply to the 1986 tax year unless specifically extended by Congress. The Administration's 1985 tax proposal suggests that this program be extended and made permanent.	Very little hard data exists about the costs of the section 127 program in terms of lost revenue to the Federal Government. Estimates made in 1984 on extension of the program through the end of 1985 suggested that the extension would cost a total of $186 million for FY 85 and the first quarter of FY 86.
b) Conduct oversight on the experience to date with employer provided training that is supported by Federal or State programs.	This option could be adopted singly, or as part of a broader consideration of additional initiatives for employer provided training.	The 1984 amendments to the vocational education program allow for employer provided training of active work forces under certain circumstances.	Not estimated, but small.
c) Consider additional incentives for employer provided training (e.g., use of tax incentives) or possible use of a payroll tax as a mechanism for financing retraining of either active or displaced workers. One proposal would allow business a 25% tax credit for future training expenses exceeding the firm's average for the prior 5 years. Eligible training activities would include apprenticeships, cooperative vocational education programs, and other activities identified by the Secretary of Labor.	Expanded public support for employer provided training can be seen as a defense against displacement if it results in a better trained work force.	Presently, employers count employee training expenses as a business expense. Some cooperative vocational projects are carried out in conjunction with State and Federal programs. A few States also provide customized training to business, or support retraining of active work forces when the alternative could be displacement of workers.	Under the 25% tax credit proposal, the Federal Government would pick up one-fourth of the costs of increased employer expenditures for training in eligible activities (e.g., apprenticeship, occupational training, and activities approved by the Secretary of Labor). The degree of employer response is not estimated.

SOURCE: Office of Technology Assessment

programs offer courses in adult basic and secondary education and courses in English to speakers of other languages. Some other Federal programs can also fund remedial education services for certain groups of adults: for example, JTPA Title II projects can provide basic education services to economically disadvantaged youths and adults; Title III projects can offer remedial education to displaced workers; and some States allocate part of their social services block grants under Title XX of the Social Security Act for basic education services to welfare recipients. The AEA is the largest source of Federal funds for adult basic education (ABE) in the general population, however.

About 2.3 million adults received remedial education under the AEA program in the program year ending June 30, 1981, the last year for which official statistics on participation in the Federal AEA program have been collected from the States.[19] The total number of adults participating in all literacy and basic skills programs is larger, since it includes people served by volunteer groups, community organizations, and State or local projects not funded under AEA. However, the total is difficult to estimate because of the likelihood that some participants are counted more than once.

The more than 2 million adults receiving remedial education each year probably are only a small part of those in need of some remedial education. The size of the population in need is not known. However, the U.S. Department of Education estimated that up to 27 million adults were functionally illiterate in 1982. It also estimated that about 2.3 million adults (including young high school dropouts, high school graduates with inadequate basic skills, and legal or illegal immigrants) are added to the pool of of Americans in need of basic education each year. On the basis of these estimates, some people have concluded that as many people are added to the pool of adults in need of basic education each year than are served by the AEA programs.

These figures should not be accepted uncritically—the 27 million figure, for example, was derived by applying 1974 survey data to the 1982 population of adults, and the 1974 survey had serious shortcomings (see ch. 7). Moreover, all efforts to define "functional literacy" are based on somewhat arbitrary assumptions about the level of literacy required to function effectively in society. Nonetheless, even though the exact number of adults in need of remedial education is unknown, the number is clearly large; a serious basic skills problem does exist in this country. Over the long term, improvements in education of children in primary and secondary schools may ease the problem. However, the need for remedial education in the adult population will remain a crucial educational priority for the foreseeable future.

Some States report that their AEA programs have not been able to keep up with the demand for remedial education. Illinois, which served 114,000 people in its AEA and State-supported basic education programs in 1984, estimates that 44,000 additional people could have been served if resources had been available. Illinois officials estimate that 16,000 people were on actual waiting lists to receive basic education services at the end of May 1985. California, which led the Nation in the number of people served by AEA projects (over 600,000), may have turned away 1,000 people a week in 1984.

When waiting lists exist, many AEA projects curtail outreach activities designed to attract the large population of educationally disadvantaged adults who lack the motivation, self-confidence, or information to seek out AEA classes. Administrators of local programs are reluctant to reach out to this group when their classrooms are already filled with more motivated adults.

While some States have recently increased funding for adult basic education, more Federal funding almost certainly will be needed if there is to be a significant expansion in the national commitment to remedial education. In 1982, total Federal and State expenditures for the AEA program were $229 million, of which 56 percent was contributed by the States and localities, and the remainder by the Federal Government. Federal appropriations for the AEA program have remained in the $100 million range for 3 years. Congress appropriated about $102 million for the AEA program in fiscal year 1986. Higher funding, more in keeping with the authorized level of $140 million for fiscal year 1985, could help restore the Federal commitment to its level of a few years ago, after inflation is taken into account.

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[19] Unofficial statistics provided by State program administrators suggest that as many as 2.6 million people participated in the program in 1984. It is unclear whether this apparent increase reflects an actual increase in the number of participants in the AEA program itself, or different reporting procedures. Some States, for example, may not distinguish between adult education projects supported with AEA funds and adult education projects supported solely by other funds when they prepare State level reports that are not officially required by AEA.

It is more difficult to determine the level of spending needed, at all levels of government, to deal effectively over the long-term with the need to improve adults' basic skills. Some studies estimate that a multiyear, multibillion dollar commitment would be needed. In addition to more funds, new delivery systems, and different approaches to basic skills education could be required. All projections of long-term fiscal needs for adult basic education programs are hampered by the unreliability of available data on the number of adults with basic skills deficiencies.

Given the uncertainty about what outcomes could be expected from a given level of funding, Congress might wish to create a special study commission (or call on the executive branch to do so) to develop an overall long-term strategy for addressing the basic skills problem. Several different participation goals (with associated funding requirements) could be identifed. The commission or agency formulating the strategy could be required to develop the information in time for congressional deliberations on reauthorization of the Adult Education Act (the current authorization expires on Sept. 30, 1988). This, together with a higher level of interim funding of the program, is an option Congress may wish to consider (see option 8a, table 2-5).

Some sentiment already exists in Congress for reevaluating approaches for dealing with functional illiteracy. For example, joint resolutions introduced in both Houses of the 99th Congress would establish a national commission on illiteracy.[20] The temporary commission, half of whose members would be appointed by the President and the other half by Congress, would report and make recommendations to the Congress within one year of its establishment. As these proposals are framed, it is not clear how much emphasis the proposed commission (if authorized) would give to adult functional illiteracy, relative to improving basic skills of young people high school age.

The Role of Employers and the Private Sector

Given constraints on Federal spending, considerable interest exists in the potential of alternative delivery systems for adult basic education. Such alternatives include more reliance on volunteers and volunteer organizations to provide educational services, and greater involvement of employers and unions in sponsoring education projects for workers. Foundations and other nonprofit organizations are also active in supporting innovative basic skills programs.

Volunteer organizations, such as Laubach Literacy Action and Literacy Volunteers of America, conduct their own literacy projects, and also have ties to State and local ABE projects. Although nationwide data are not available, volunteers are also used in basic education projects supported by the AEA. If well-trained and effectively supervised, volunteers could help expand the reach of AEA-supported projects, and allow some people on waiting lists to enter classes sooner. Volunteers often provide one-to-one tutoring, an approach that can help overcome lack of self-confidence or lagging motivation. Often, individual sessions can be arranged between volunteer tutors and clients to fit the clients' schedules.

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[20] The commission is proposed in House Joint Resolution 213 and Senate Joint Resolution 102, as introduced in the 99th Cong. A similar commission and study was called for in S. 1160, the proposed National Defense Authorization Act for fiscal year 1986 as passed by the Senate on June 5, 1985. The provision was dropped in the conference committee on the bill. For status and discussion of these and other proposals in the 99th Congress, see Paul M. Irwin, "Adult Literacy Issues, Programs, and Options," Library of Congress, Congressional Research Service, Issue Brief IB85167.

Volunteerism is emphasized in the Department of Education's Initiative on Adult Literacy, announced by President Reagan and former Secretary of Education T.H. Bell in September 1983, and the National Adult Literacy Campaign, sponsored by the Coalition for Literacy in conjunction with the Advertising Council. Under the Campaign, a national advertising effort to attract students and to recruit volunteer tutors and corporate sponsors was launched in January 1985. At present, it is not clear whether State and local volunteer organizations and the instructors and administrators of adult basic education programs are prepared to make effective use of volunteers who respond to the campaign. It may be possible to improve the use of volunteer tutors by providing funds for their recruiting and training. Federal seed money, channeled through the Department of Education's Division of Adult Education, could help build the capacity of local volunteer organizations.

Employers and unions could play a significantly greater role than they do now in efforts to improve basic skills in the work force. Some companies sponsor programs at worksites or in conjunction with local educational institutions to provide basic skills courses to their employees. So far, no one has collected the data needed to evaluate these company-sponsored programs. In theory, at least, they offer the advantages of convenience of time and place and of peer group support. However, most companies do not offer basic skills programs, and many feel that this is the task of the public schools alone.

Identifying current and potential roles of employers in providing basic skills education to employees could be a subject for congressional oversight of AEA. Or, if Congress decides to establish a commission on functional illiteracy, it could direct the commission to assess ways to encourage employers to provide basic education to their workers.

Given the limited funds available for projects that serve all eligible adults, it may be questioned how much direct public support should be given to employer-provided basic education projects. In reauthorizing AEA in 1984 through Public Law 98-511, Congress authorized States to support ABE projects undertaken by for-profit organizations when this would contribute significantly to the objectives of the act, and when the for-profit organization could provide substantially equivalent education at a lesser cost or provide services and equipment not available in public institutions.[21] Thus, it appears that employers, as well as proprietary schools and for-profit learning centers, can qualify for AEA funds under some circumstances. Similar provisions are contained in the Carl D. Perkins Vocational Education Act of 1984, which authorizes basic skills programs in support of vocational education objectives. Depending on whether States choose to fund such activities, a track record will begin to emerge in the next few years on these forms of private-public sector educational partnership. If additional public support for employer-provided basic skills courses is merited, care will be needed to assure that traditional basic education programs for the public at large are not jeopardized. The danger of supporting private programs at the expense of general public ones might be avoided if public support for employer-provided basic education were part of an earmarked package of training incentives. Selected options to encourage greater employer involvement in training the active work force are discussed in Issue Area 10 of this chapter.

The Importance of Information and Monitoring

Better information is essential for formulating and monitoring the success of long-term programs to reduce functional illiteracy in the United States. The most frequently cited estimates of functional illiteracy are derived from the 1974 survey of adult performance levels which categorized 20 percent of the adult population as functionally incompetent and another 30 percent as marginally competent. This survey was not a survey of literacy levels, but nonetheless has been widely cited as a measure of functional illiteracy.

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[21] Public Law 98-511, Section 304.

The need for periodic monitoring of the scope of the adult basic skills problem in the United States is clear. A new one-time survey of literacy levels among young adults (21 to 25 years of age) is now being undertaken by the Educational Testing Service as part of the National Assessment of Educational Progress (NAEP). Results of the new survey are expected in the spring of 1986. Given the magnitude of the problem, periodic surveys (perhaps every 3 or 4 years) of adult literacy and basic skills performance levels on a national basis would be desirable. The cost of the current NAEP survey (for young adults only) is estimated to be $1.9 million. It is believed that an expanded survey, sampling functional literacy levels of all adult age groups, would cost about the same, since the already developed NAEP model could be used to analyze a broader sample of the adult population. Survey findings would be most useful to policymakers if they could be related directly to needs for adult basic education programs and associated funding levels.

Better information about State and local AEA projects, and projects conducted through alternative delivery systems (such as employers, volunteer organizations and foundations, and other Federal programs) would also be desirable. From 1982 through 1984, restrictions on data collection by the Department of Education were in effect for the AEA program. As a result, official national data obtained from the States about their AEA programs is quite limited for the program years 1982 through 1985. In reauthorizing AEA in 1984, Congress was more specific about the kinds of information the Secretary of Education may obtain from the States under the program. In addition better information about basic education services that are funded separately from AEA projects would help to determine the nationwide commtiment to remedying adult basic skills deficiencies.

If Congress wishes to be assured that a continuing effort is made to improve information on basic skills, it may wish to consider providing separate funding for periodic surveys of adult literacy levels (option 8b, table 2-5). It also may wish to be assured, through its oversight of implementation of the 1984 amendments to AEA or through establishment of a special study or commission on functional illiteracy, that data on State and local programs are adequate to meet congressional needs. Developing better estimates of employer-provided basic education, for example, could be a function of a study or commission on adult education, while a responsibility to develop information on federally supported activities (other than those through AEA) could be assigned to the Federal Interagency Committee on Education.

Continuing Education and Worklife Transitions (Issue Area 9, Table 2-5)

Some workers in declining occupations or industries may be able to lessen the likelihood of displacement in the future by getting training in new job skills while they are still employed. An extensive system of adult education and training exists in the United States. Parts of this system, such as community colleges and some vocational schools, are highly accessible to adult workers.

As a practical matter, comparatively few blue-collar workers undertake preventive retraining. Many workers do not believe that the education and training system has much potential for helping them prepare for occupational changes even when it is clear that their jobs are vulnerable to displacement. Also, workers often have very limited information about the kind of training that is most likely to open new job opportunities. Moreover, workers preparing for career changes usually have to do so on their own initiative, often with little or no financial support from employers or the Government. For example, most adult workers seeking training for a career change study part time, and only a small portion of Federal student-aid is available to part-time students. While some adults are able and willing to finance their own retraining, many are not prepared to do so.

Over the last few years, several approaches have been proposed to make it easier for adult workers to take education and training that would help them change careers. These approaches include, among others: 1) greater emphasis on outreach, to encourage more adults to take part in education and training; and 2) expansion of financial assistance available to adults in education programs, either directly through student-aid programs, or indirectly through changes in the Internal Revenue Code. Another approach would be to target special assistance for retraining workers in occupations or industries that are subject to widespread displacement. In theory at least, this approach could help some workers in declining occupations make career transitions while they are still employed.

Expanded Emphasis on Outreach Activities for Adults (Option 9a, Table 2-5)

Several barriers prevent many adults from making use of educational programs in their communities. These include personal and psychological barriers, such as lack of self-confidence; difficulties in scheduling instruction at times and locations convenient to adults; lack of career counseling for adults; and lack of information about available educational resources and opportunities. (Financial barriers are also important; these are discussed separately.)

Increased Federal support for adult outreach is under consideration, and several bills on this issue have been introduced in the 99th Congress.[22] Some bills propose to reinstate an outreach program as part of Title I of the Higher Education Act of 1965 (as amended), a law up for reauthorization in the 99th Congress. Many of the continuing education activities originally authorized under this title were modified by the Higher Education Act of 1980. Funding for the continuing education and adult outreach activities under Title I peaked at $18 million in 1976. Since fiscal year 1981, when most of the funds already appropriated for the adult outreach program were rescinded, no funds have been appropriated specifically for the outreach provisions of Title I.[23]

Renewed Federal support for outreach activities might encourage more workers to participate in career education and training, and cause educational institutions to offer more programs to meet the educational needs of underserved groups of adult learners. One of the Title I bills introduced in the 99th Congress (S. 480) would authorize up to $50 million in fiscal year 1986 (and such sums as necessary through 1991) for innovation and outreach projects and R&D activities related to postsecondary continuing education. The bill identifies several groups of adults as likely to benefit from these programs, including (among others) dislocated workers, people (especially women) returning to the labor force, those needing remedial education or counseling to benefit from postsecondary education, and employees of small or medium size firms that do not offer training and education activities.

The bill would authorize the Secretary of Education to make grants to institutions of higher education (including qualifiying proprietary institutions and postsecondary vocational institutions) to better serve adult learners. The grants could be used to make educational opportunities available to adults at convenient times and locations (including the workplace); to promote collaborative efforts with employers and employees to make postsecondary education responsive to local, regional, and national employment and economic conditions; to help adults overcome barriers limiting their participation in postsecondary education; to provide information and counseling services for adults; to develop innovative delivery systems and curricula to facilitate career development and transitions; and to implement technology-based delivery systems to enhance adult access to postsecondary education. The grants could not be used for stipends.

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[22] See, for example, H.R. 3700, the proposed Higher Education Amendments Act of 1985 as reported by the House Committee on Education and Labor on Nov. 20, 1985, S. 480, introduced on Feb. 20, 1985, and H.R. 1473, as introduced on Mar. 7, 1985.

[23] As discussed in *Reauthorization of the Higher Education Act: Program Descriptions, Issues and Options*, prepared by the Congressional Research Service for the Senate Committee on Labor and Human Resources, February 1985 (Senate Print 99-8), pp. 440-441.

The need for expanded outreach activities in remedial education programs is discussed separately under the heading Basic Skills and the Work Force (Issue Area 8) of this chapter. Remedial education programs traditionally attract only highly motivated adults; outreach directed to less motivated adults with basic skills problems may attract more people to these programs. The Title I outreach activities in the proposals discussed in this section could be used to provide guidance, counseling, and remedial instruction to adults who need such services to benefit from postsecondary education. Another option would be to expand the emphasis on outreach activities in publicly supported remedial education programs, such as those conducted with the support of the Adult Education Act. Neither of these options is mutually exclusive.

Financial Assistance for Continuing Training and Education

Federal financial assistance to working adults for continuing education traditionally has been quite limited. However, in recent years, proposals have been made to increase the level of support or to broaden the circumstances under which adults could receive financial assistance for continuing education. Most of these bills and legislative proposals can be grouped in three broad categories: 1) increasing the access of part-time adult students to Federal financial aid for education, 2) broadening the tax deductibility of education and training expenditures to include education not directly related to one's current job, and 3) creating special tax advantages for individual training accounts to finance education or training. This approach is discussed in detail in chapter 6.

Most employed adults who participate in education or training are part-time students and are not enrolled in degree or certificate programs. This limits their access to Federal financial assistance. The major Federal aid programs for postsecondary students—Pell grants, Guaranteed Student Loans, College Work-Study, Supplemental Educational Opportunity Grants, and National Direct Student Loans—are structured primarily to help dependent, full-time students in the 18- to 22-age range.

With the exception of Guaranteed Student Loans, students are eligible for Federal aid under these programs only if they are enrolled in "eligible programs" leading to a degree, a certificate, or other formal program of preparation for a recognized vocation. This requirement excludes more than half of the adults in postsecondary courses. Only two programs, Supplemental Educational Opportunity Grants and College Work-Study, are available to students enrolled less than half time. Since 1980, Congress has permitted up to 10 percent of the funds in these two programs to be given to students who are enrolled less than half time. Even so, few schools earmark the full 10 percent to these students.

Many adults who might otherwise be eligible for assistance may have trouble competing for funds because eligibility requirements are designed for financially dependent young people. For example, adults who own homes may be penalized in calculations of the need for financial aid. Displaced workers are affected by calculations of need based on the previous year's income. Legislation has been proposed in the 99th Congress which would require discounting of home equity and unemployment benefits in calculating financial aid needs for dislocated workers, thus allowing determination of needs to be based on their current income.[24] Other options Congress might consider to increase the access of adults to Federal student aid include modifying the degree and certificate requirement and earmarking more aid to students enrolled less than half time.

Several bills have been proposed to allow taxpayers to deduct or, in some cases, take tax credits for eligible education expenses in calculating their income taxes. While some of these bills limit the deduction or credit to accounts established for dependents of the taxpayer, others also allow the taxpayer to deduct or take credit for his or her own educational expenses.[25] The deduction allowed varies from $1,000 to $2,000 annually in different bills. Some bills specifically identify expenses incurred at vocational schools as eligible expenses, while others do not. Broadening the tax deductibility of education expenses would benefit most those with higher incomes (and thus higher tax brackets), and therefore may be more useful to managers and professionals than to blue-collar workers; tax credits would be of greater benefit to lower income workers than deductions.

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[24] See, for example, H.R. 1611,the proposed Dislocated Workers Act of 1985, as introduced on March 20, 1985 and H.R. 3700 as reported by the House Committee on Education and Labor on Nov. 20, 1985.

Similarly, professional and technical people with relatively high incomes may be more likely to make use of individual training accounts than workers with lower incomes. As proposed in bills introduced in the 99th Congress,[26] the individual training account approach would authorize tax deductible training accounts, funded jointly by employers and workers, that could be drawn on to provide vouchers for training or relocation assistance if a worker was displaced. Contributions to individual training accounts by both employers and employees would be deductibile for income tax purposes. Large employers (defined as companies employing 25 people or more) who refused to participate in the program would not be eligible for certain reductions in Federal unemployment taxes.

Another approach for assisting adults in financing education would be to authorize taxpayers to establish tax-deductible education savings accounts regardless of their employment status. One possibility would be to permit individual taxpayers to set up special tax-deductible savings accounts to meet educational expenses of themselves or their dependents. Such a tax deduction might be extended to taxpayers who do not otherwise itemize deductions, and could be used for educational expenses at an institution of higher learning or a vocational schoool. Both features could be attractive to blue-collar workers interested in retraining, but (as with other proposals involving tax incentives) it is hard to tell how many workers would enroll in courses they would not otherwise have taken.

All these approaches—whether aimed at direct student aid or at tax incentives for education—need to be viewed in the context of curent debate about the Federal deficit, tax reform, and Federal education priorities. At a time when major reductions in Federal student-aid have been proposed, increases in financial aid to adults might reduce aid available to other categories of students. By the same token, new tax incentives to help workers finance education for career changes, while not intensifying competition for direct financial aid, would affect Federal revenues and may be viewed as contrary to tax simpification and deficit reduction.

Besides options intended to increase access to continuing education for all adults, a more limited and focused approach would be to target some educational assistance to workers employed in declining occupations or industries (option 9b, table 2-5). Workers could use this assistance to obtain new job skills while they still have jobs. Determining worker eligibility for such assistance would depend on projections or forecasts of industrial activities. This could be done at the Federal or State level; workers in declining industries or occupations could be made eligible for special consideration under various education assistance programs.

Such an approach could have both positive and negative features. A matter of concern is whether a targeted approach would reach more than a few workers, given the uncertain reliability of occupational forecasts, and the resistance of many workers to retraining even when they are actually displaced, not merely threatened. Also, it can be argued that it is inappropriate for the Federal government to provide positive incentives for workers to leave any industry or occupation, since it is possible that this might accelerate the process of decline. On the positive side, a targeted approach would help some workers prepare for career transitions while still employed, thus easing the process of change and probably reducing the number of workers experiencing displacement in the future. In cases where several months of advance notice of layoffs or plant closings were given, targeted educational assistance could be an especially useful option. In fact, this option could be one of the services offered to workers in pre-layoff assistance programs. (Prelayoff assistance options are summarized in Issue Area 1, table 2-1).

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[25] These include H.R. 96, introduced on Jan. 3, 1985, which would allow taxpayers an income tax credit for education expenses, and H.R. 414, also introduced on Jan. 3, 1985, which would allow an income tax deduction for education expenses.

[26] These proposals include H.R. 26, as introduced on January 3, 1985, and S. 934, as introduced on April 17, 1985.

Employer-Supported Training and Education (Issue Area 10, Table 2-5)

Corporate training activities are sometimes viewed as exclusively a concern for the private sector. However, components of this training system are indirectly supported by the public at large, because of favorable tax treatment of employer-provided training and links between business and publicly supported educational institutions. Thus, questions about access to training and education assistance by different levels of employees within firms, and about the quality and kind of services provided, are likely to be raised increasingly in Congress and elsewhere. Two issues that are especially relevant to legislative debate about the employers' role in helping employees prepare for career changes are: 1) the immediate question of whether to continue favorable tax treatment for employees receiving tuition and other educational assistance from employers offering qualified continuing education programs, and 2) the question of whether greater public support should be provided for training and retraining of active work forces, and for improving access of blue-collar or less educated employees to training.

Access to the Corporate Training System

By virtually any measure, employers are a dominant factor in the continuing education and training of employed workers. Estimates of direct expenditures on training and indirect support of educational activities on the part of employers for their employees range from about $10 billion to over $100 billion per year. These estimates do not include informal training given to employees at the workstation.

While the role of employers is great, it is clear that access to employer-provided or employer-assisted training is by no means uniform. It is generally believed that people who work for large companies are much more likely to receive education and training than those working for small companies. This belief, while plausible, is difficult to substantiate simply because most of the statistical data on corporate training programs focuses on large corporations.

Some larger firms in highly technical fields have established broad continuing education programs that can be used by all employees, sometimes in conjunction with employment security programs aimed at retraining current employees. Also, the recent attention to training and retraining in union contracts is a potentially important vehicle for meeting the needs of workers who are union members. However, only about 18 percent of all U.S. workers belong to unions, and of these, only a minority are covered by contracts with extensive training provisions.

Most corporate training and education is focused on the needs of managers, administrators, professionals, and technicians. In part, this reflects the greater need for continuing education in professional, managerial, and technical careers. Training requirements for many blue-collar jobs often can be satisfied through a few hours or days of instruction. However, the pattern also reflects the reluctance on the part of some employers to provide training in broad transferable skills, since such investments could be lost to the company if the employee found other employment.

In the long run, narrowly focused training and education policies by employers may be self-defeating. A well-educated and highly trained work force, at all levels of employment, is an essential component of an internationally competitive economy. Moreover, corporations with human resource policies that aim to enhance the skills and talents of all their employees may find it easier to attract and keep a highly motivated work force. At the same time, employers cannot be expected to assume the costs of retraining workers for jobs with other employers.

All current estimates of corporate expenditures in training their employees are of questionable accuracy. Estimates vary from a fraction of 1 percent to 3 or more percent of the gross national product. This lack of reliable data impedes analysis of more important questions, such as whether U.S. employers are underinvesting in human capital, and how the commitment of U.S. employers to employee training compares with that of employers in other advanced economies. Given the importance of these questions to debate about policies related to employer provided training, Congress might wish to call on the executive branch to develop an improved information base on employer-provided training.

Tax Incentives for Employer-Provided Education Programs

Congress generally has not used the Internal Revenue Code as a vehicle for encouraging individuals to participate in continuing education. The major exception has been education or training to maintain or improve an employee's current job skills, or instruction that is required by the employer. Employees can deduct such expenditures as business expenses in calculating their income tax. However, workers cannot deduct education or training expenses to prepare for new careers or different jobs.

The other major exception has been favorable tax treatment of benefits from employee education assistance programs that many companies now offer. These programs provide employees with tuition assistance or other forms of support for courses that may not be directly related to their current jobs. Since 1978, Section 127 of the Internal Revenue Code has allowed employees to exclude educational assistance provided under a qualified company program from their taxable income, even when the education was not job-related.[27] If Congress wishes this exclusion to be continued, it will need to act to extend the provision (option 10a in table 2-5) so that it will apply in the 1986 tax year. (The exclusion expired on Dec. 31, 1985.) Bills to continue the exemption have been introduced in the 99th Congress.[28]

Some believe that these benefits should be considered income for purposes of the Federal income tax. A key issue in debate about continuing the program is whether the public costs in maintaining the exclusion are justified by the program's potential to reach a broad cross-section of employees. Company education plans that qualify for the Section 127 exclusion must not favor employees who are corporate officers or owners, or are highly compensated in comparison with other employees, and the educational program must be "for the exclusive benefit of the employees." Except for sports, games, and hobbies, the kind of education supported by a company program is not restricted; it can include courses that are not related to the employee's current job.

Labor representatives have argued that because lower level jobs are more narrowly defined, a requirement that courses be job-related in order not to be counted as income would discriminate against lower level employees, including women and minorities. Furthermore, the response of blue-collar workers to employer-provided tuition assistance is generally low because of barriers such as lack of information and lack of self-confidence. If Congress allows tuition assistance to become taxable income, new barriers may be added.

Comparatively little information is available about who benefits the most from favorable tax treatment of employer-provided training, or what the true costs of the program have been to the Federal Government. A 1985 survey by the American Society for Training and Development found that, among the 319 firms with education programs responding to the survey,

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[27] Originally authorized for a 5-year period, the 98th Cong. extended section 127 until Dec. 31, 1985 through enactment of Public Law 98-611. The section 127 program had been allowed to lapse at the end of 1983. However P.L. 98-611 re-instated the exclusion and made it retroactive for the 1984 tax year. It also limited the amount of the exclusion to $5,000.

[28] See for example, S. 558 and H.R. 1356, as introduced in the 99th Cong. It should be noted that the Appendix of the President's May, 1985, tax proposal report to the Congress calls for a permanent continuation of the exclusion, and also for the dropping of the $5,000 annual limitation on the exclusion. Section 1161 of H.R. 3838, the proposed Tax Reform Act of 1985 as passed by the House on Dec. 17, 1985, proposes to extend the exclusion through Dec. 31, 1987.

72 percent of participating employees earned less than $30,000 per year, and 22 percent earned less than $15,000. The survey found participation rates to be highest among companies with fewer than 500 employees. The survey was not representative of firms as a whole since over half the respondents employed over 3,000 people.[29]

In extending the Section 127 provision until the end of calender year 1985, Congress directed the Treasury Department to provide a report (due at the end of October 1985) on the status of the program. In the meantime, estimates presented in congressional reports on the extension suggest that loss in tax and social security revenue for the five-quarter extension period (ending on Dec. 31, 1985) would be $155 million in fiscal year 1985, and $31 million for the first quarter of fiscal year 1986.

Alternative Policies to Encourage Training and Retraining of Active Work Forces

Several proposals have been made in recent Congresses that would broaden Federal support for employee training of active work forces. Many of these proposals have as a stated purpose enhancement of U.S. industrial competiveness. They emphasize the advantages of training and maintaining an adaptive and skilled work force as a defense against future displacement.

A wide range of policy questions and alternative courses of action are associated with this issue. Specific aspects of the issue that are considered below include: 1) use of congressional oversight to review the experience to date with public incentives for employer-provided training; 2) consideration of whether additional tax incentives would encourage employers to provide broader training and education opportunities to employees; and 3) possible use of payroll taxes patterned after the Federal-State unemployment compensation system as a mechanism for financing employer-provided training in situations where workers might otherwise be displaced, or, alternatively, in financing training or retraining of displaced workers.

Most existing cooperative approaches to work force education and training on the part of employers, unions, and public agencies are recent in origin. As discussed in chapter 5, some States support or assist training or retraining of work forces by private employers. Often, this training assistance is offered as an incentive to attract new industry to a State or region. Sometimes it is provided as part of a strategy to encourage local firms to stay in an area and to help them remain competitive. Some Federal assistance to State-industry cooperation programs is also available. For example, the Carl D. Perkins Vocational Education Act of 1984, the major law governing Federal vocational education expenditures, authorizes States to use some of these funds for training and retraining of active work forces by private employers, under certain circumstances. While special State programs for adult training and retraining authorized by the Perkins Act have not been funded, some funds under the basic grant program of the act are targeted for adult training and retraining. Evaluation of the experience to date with these programs and activities might be a useful subject for congressional oversight (option 10b, table 2-5). Oversight could broaden public understanding of the issues involved and help Congress evaluate alternative proposals should it wish to expand assistance for employer-provided training (see option 10c, table 2-5).

Several proposals of this sort have been offered in recent Congresses. For example, one purpose of H.R. 1219, the proposed National Training Incentive Act of 1985, would be to stimulate greater investment in training by employers. (The bill also would allow displaced workers to withdraw funds from their individual retirement accounts to finance approved training, without paying a tax or penalty on the amount withdrawn.) The bill would authorize a 25-percent tax credit for a company's training expenditures that exceed the average annual amount it spent on training in the previous 5-year period. Eligible training expenditures would include registered apprenticeship programs, qualified employer-designed or employer-sponsored training programs, cooperative vocational education programs, programs at postsecondary schools, and other programs for improving job skills directly related to employment.

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[29] American Society for Training and Development, *Employee Educational Assistance: Who Pays, Who Benefits* (Arlington, VA: American Society for Training and Development, 1985).

Possible use of payroll-based funding to train and retrain both employed and unemployed workers has evoked some interest. The use of payroll-based contributions to finance training is perhaps most fully developed in France, where a government-imposed obligation to finance training has been in effect for employers of 10 or more workers since 1971. French companies may use this obligation—currently about 1.1 percent of a firm's total wage bill—to finance internal training of employees, or for industry-wide training activities. Employers who do neither must contribute an equivalent amount to programs for unemployed people in approved training centers or to the national government.

Another possibility is to levy a special payroll tax on employers equivalent to a small portion of the unemployment insurance tax, and earmark it for training and retraining programs. Two States—California and Delaware—have enacted payroll-based taxes, collected through the UI system, to finance retraining of workers. These payroll-based taxes, strictly speaking, are not part of the UI system. Federal law prohibits diversion of any part of the UI tax for any non-UI purpose.

THE FEDERAL ROLE IN RESEARCH, DEVELOPMENT AND TRANSFER OF INSTRUCTIONAL TECHNOLOGY

Instructional technologies, such as computer-assisted instruction and courseware for interactive videodisk systems, play an increasingly prominent role in the delivery of training and education to the work force. Many currently used instructional technologies were developed by or with the support of Federal agencies, and some have been adopted by industry due to their potential to cut training costs and provide uniform quality instruction at diverse locations. Instructional technologies have significant potential for effective use in the delivery of basic skills instruction to adults, and in many vocational training and retraining applications. In several basic education and technical training projects involving the computer, adults have learned very quickly, and in some cases have committed more time to their studies than students taking traditional courses (see ch. 7 for details).

Despite their promise, instructional technologies have not yet come into widespread use in the adult education system. Congress may wish to take steps to encourage greater use of these technologies in meeting the educational and training needs of both employed workers and displaced workers. The Federal role in research, development, and transfer of new instructional technologies could be expanded through: 1) more effective measures to transfer federally developed training technologies to education and training institutions and to the private sector, 2) greater support for development of new adult basic and vocational training materials for instructional technologies, and 3) establishment of one or more national centers at universities to focus research on how adults learn. (See Issue Area 11, table 2-6.)

Transfer and Diffusion of Federal Training Technologies

Effective and timely transfer of federally developed training technologies to State, local, and private sector education and training institutions can contribute to efforts to upgrade the skills of the U.S. work force. Over the years, the Federal Government has played a major role in developing many training technologies, including computer-based education and training, simulation, and educational applications

Table 2-6.—The Federal Role in Research, Development, and Transfer of Instructional and Training Technology

Issue area and options	Relationship to other options	Relationship to current policy	Estimated cost of option to Government
Issue Area 11: Encouraging research, development, and transfer of instructional technology			
a) Transfer and diffusion of federal training technologies:			
Require the executive branch to establish a specific mechanism to facilitate the transfer and adoption of federally developed training materials and technologies by public education and training institutions, and the private sector. One legislative proposal before the 99th Congress would establish a Department of Commerce Office of Training Technology Transfer and require other agencies to appoint a training technology transfer officer. An inventory would be made of current and proposed Federal training technologies (defined as computer software developed for training). A mechanism for private sector involvement in financing the conversion of training technologies to non-Federal public interest users of these technologies is provided.	Option could be implemented in conjunction with (b) or (c) below. Option also can be seen as facilitating rapid adoption of new training, education, and instructional technologies for JTPA Title III projects, and also could serve as a possible mechanism for transfer of adult basic education and vocational education instructional technologies to industry and public education systems. (See Issues Areas 3, 8, 9, and 10.)	A generic Federal technology transfer mechanism is provided in the Stevenson-Wydler Technology Innovation Act of 1980 (Public Law 96-480).	Legislative proposal for training technology transfer in the 99th Congress would authorize up to $3 million annually. This is substantially less than an earlier proposal in the 98th Congress, which proposed direct grants for conversion of federally developed technologies to non-Federal uses. Under the approach proposed in the 99th Congress, the private sector—not the Federal Government—would assume the costs of modifying training technologies so that they could be used in non-Federal applications by nonprofit organizations. (In return, for-profit organizations making such conversions would be provided certain benefits, such as reduced fees or exclusive marketing rights.)
b) Federal support for research and development on instructional technology:			
In addition to continued support for research on the next generation of instructional technologies, Congress could earmark some funds specifically for the development and application of instructional courseware for adult basic skills. (This funding would be in addition to basic skills R&D now undertaken by the Department of Defense.)	Could be adopted in conjunction with (a) and (c) and would also support other "basic skills" options. (See issue areas 3, 8, and 10.)	Section 309 of the Adult Education Act (as amended in 1984, Public Law 98-511) could be used to support development of courseware oriented to adults. However, 309 funds may not be set aside for this purpose unless appropriations under AEA are at least $112 million. (Funds for AEA in FY 85 amounted to $102 million.) The Department of Commerce is currently considering whether a need exists for evaluation of interactive videodisc systems to deliver basic skills as part of its effort to improve productivity in the labor force.	Outside of the Department of Defense, government funding for basic skills courseware for adults is very modest, probably less than $2 million, including State activities funded under AEA. Doubling the current level of funding would cost about $4 million per year.
c) Support for research and evaluation on adult learning:			
One option would be to fund one or more national centers for research on adult learning with a special focus on adult literacy. The centers could be affiliated with universities.	Could be adopted in conjunction with other basic skills options.	While no center on adult learning exists, a new national center on education and employment is expected to be established through the support of the Department of Education; this or other centers could focus some research on adult learning.	If the center concept explored here is adopted, a small amount of funding (say $1 million by the Federal Government annually) could be used to identify and provide partial funding for adult learning research. Some funding support could be sought by the center from industry and other government programs. The center could also be assigned responsibility for evaluation of some new courseware for basic skills.

SOURCE: Office of Technology Assessment

for interactive videodisk technologies. As research and development sponsored by the Federal Government continues, new applications for training technologies that have promise for use in training by private industry and by educational institutions are being developed.

Several Federal agencies, including DOD, NSF, and the Department of Education (ED), support research and development on new training and educational technologies. Currently, DOD has the largest budget for instructional technology. DOD training and education technologies may have broad applicability to many civilian uses, but are not specifically developed for use by the public education system or the private sector, while technology diffusion is a major purpose of NSF and ED activities in this area. Federal R&D activities in this area are discussed in chapter 7.

Several DOD research and development projects related to basic skills have promise for effective use in retraining projects for displaced workers and other adults needing remedial education in order to find and hold good jobs. For example, research projects are now underway in the Naval Personnel Research and Development Center, the Army Research Institute, and elsewhere within DOD that, in different ways, explore the potential of the computer in delivering job-related basic skills instruction. Some work also has been done within the military on adapting interactive videodisk systems to basic skills instruction.

DOD also has developed new training technologies and materials in such areas as maintanance, equipment repair, electronics and a wide variety of other skill areas that are relevent to vocational education and training for jobs in the civilian economy. Some of these projects involve production of training lessons for delivery on interactive videodisk systems. These and other projects, if shown to be effective in the military, may well have potential for conversion to civilian use in time.

Other DOD and NSF research is focused on developing new instructional technologies with potentially far reaching implications for delivery of education and training. Some research is aimed at developing "authoring" systems for courseware that could bring down the costs and make it easier for trainers and educators to prepare their instructional materials for use on computers and videodisk systems. These and many other promising areas of research have potential for widespread application throughout the education and training system —including new ways to provide instruction to adults.

Effective diffusion of Federal training technologies to non-Federal users is by no means assured. Some of these training technologies are developed to meet the specific internal training needs of the sponsoring agency, and information about the new technologies often is not widely available. In addition, some instructional technologies developed specifically to meet the training needs of an agency or mission may not be useful for other applications without modification. The expense involved in converting these instructional technologies to civilian use may limit the pace of adoption.

One approach for addressing these issues would be for Congress to direct the executive branch to establish a mechanism to transfer Federal training technology (Issue Area 11, option 11a). Such a mechanism is proposed in S.1662, a bill introduced in the 99th Congress.[30] A purpose of the bill would be to facilitate the transfer of Federal training technologies to the private sector and State and local agencies to support education, training, and retraining of industrial workers, especially those working in small businesses.

The bill defines training technology as software for computer-based instruction, interactive videodisks, audiovisual devices, programmed learning kits, and associated manuals and devices. It would establish an Office of Training Technology Transfer within the Department of Commerce's National Technical Information Service[31] and would direct all Federal agencies that use training technology to designate a training technology transfer officer. The bill would authorize the appropriation of $3 million in fiscal year 1987, and such sums as may be necessary in each succeeding year to carry out the training technology transfer program.

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[30] S. 1662, the proposed Training Technology Transfer Act, was introduced Sept. 19, 1985.

[31] NTIS is also the location for another government-wide technology diffusion office, the Center for Utilization of Federal Technology, mandated by the Stevenson-Wydler Technology Innovation Act of 1980.

A function of the training technology transfer office would be to maintain a comprehensive inventory of training technologies developed under the supervision of Federal agencies. The inventory would also provide information about patents, copyrights, or proprietary interests affecting its conversion or transfer.

To facilitate adoption of training technologies by non-Federal users, the bill would encourage for-profit commercial users to finance the conversion of training technologies for use by nonprofit public interest users (schools, colleges, voc ed facilities and all agencies under JTPA).[32] Specifically, the agency would be authorized to sell or lease training technology to commercial users. Nonprofit users could apply to receive the technology at no cost. In cases where the technology must be modified or converted before it could be used effectively, the public interest user could enter into a cooperative agreement with the commercial user. Commercial users in such agreements, in turn, would be offered favorable terms by the Government (e.g., waiving or reducing prices and lease fees, or exclusive sale or lease arrangements) in return for accomplishing the conversion or modification. (Three conditions would limit the circumstances in which such favorable terms could be granted: the cooperative agreement must call for conversion of the technology by the commercial user to the needs of the public interest groups, the conversion would be performed at no charge to the public interest group, and the agreement must be acceptable by the Director of the Office of Training Technology Transfer.)

Another way to address this issue would be to give training technology transfer higher visibility in the existing mechanism for technology diffusion set up by the Stevenson-Wydler Technology Innovation Act of 1980 (Public Law 96-480). Public Law 96-480 established a generic apparatus for Federal technology diffusion which applies to most Federal laboratories. While this law has not been fully implemented, its provisions for Offices of Research and Technology Applications within the Federal laboratories and for a Commerce Department clearinghouse for information about Federal technologies have been implemented. While this mechanism could be employed to provide information about Federal training technologies, it has only occasionally been used to transfer a federally developed training technology.[33] Thus, if Congress wishes to give training technology transfer a high degree of visibility, it may wish to establish a specific technology diffusion mechanism.

Development of Instructional Technology for Basic Skills

Very little of the courseware and other instructional materials now used in basic skills programs was developed with mature adults specifically in mind. Even some of the most widely used courseware in adult education projects was developed for young people in the 16- to 21-year age group. Much of the current work on basic skills being conducted by the training and human resource development laboratories of DOD is focused on the young recruit, not the mature adult. Moreover, instructional technologies and courseware developed to meet the specific basic skills needs of the military are not automatically consistent with the objectives of industry and civilian educational institutions. For example, DOD courseware for basic skills is often focused on the narrow objective of teaching the minimal academic skills needed to perform specific jobs. This approach might be appropriate when used by firms to upgrade the skill levels of employees. As an overall objective of a local adult education class, however, the approach of linking basic skills instruction narrowly to a specific job is less appropriate.

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[32] This is in contrast to a similar training technology transfer proposal introduced (but not enacted) in the 98th Cong., in which the Federal Government was authorized to provide conversion grants.

[33] In one case, Public Law 96-480 has been used as the mechanism for diffusion of a federally developed training technology. A computer-assisted reading improvement program that was developed by the Navy has been transfered to two libraries, where it is used in basic literacy programs for adults and high school dropouts. ORTAs in two Army and Navy research laboratories, and the National Commission on Libraries and Information Science, were involved in this technology transfer project (see ch. 7 for details).

Little of the instructional technology R&D budget of the Federal Government is aimed at developing general basic skills instructional materials for older, mature adults. This has not been a high priority instructional technology activity in the Department of Education. States are using more funds for instructional technology development under AEA than in the past. In fiscal year 1985, for example, states spent $1.2 million for technology projects under Section 310 of AEA, twice the amount spent for this purpose in fiscal year 1983. Also, the Fund for the Improvement of Postsecondary Education recently made a small grant to a community college for developing, field testing, and validating courseware for adult basic education. The National Institute of Education (NIE) (now part of the Office of Educational Research and Improvement) currently supports a National Center for Educational Technology at Harvard University. However, this center focuses on the elementary and secondary school system, not on adult education. Total R&D expenditures by NIE for educational technology were $12.7 million from fiscal year 1980 through fiscal year 1985, but only one project was clearly related to adult basic skills.

Given the contribution that improved basic skills courseware might make to adult basic education, additional support for R&D in instructional technologies for basic skills may be appropriate (Issue Area 11, option b). Several alternatives could be pursued. One possibility would be to direct the Secretary of Education to fund such activities through Section 309 of AEA. This would require an annual appropriation for AEA of at least $112 million—the level needed to trigger a 5-percent set-aside authorized under Section 309 of the law for research, development, demonstration, dissemination, and evaluation projects; another option would be congressional action to remove the $112 million trigger. To avoid competition for the limited funds available for delivery of remedial education services under AEA, it may well be that a separately funded mechanism would be needed.

Some other Federal agencies in addition to ED, could play a role in supporting such activities. For example, the Department of Commerce's Office of Productivity, Technology, and Innovation is seeking to identify an appropriate demonstration project that would test the effectiveness and costs and benefits of interactive videodisk systems in addressing a major human resource problem for industrial training. It is currently sponsoring a needs assessment study of the potential of interactive videodisks in dealing with functional illiteracy. If the needs assessment study shows that further work would be desirable, the Department may need additional funding to proceed. As is discussed in chapter 7, the interactive videodisk has substantial promise in adult basic skills instruction, especially if courseware appropriate to adults can be developed. Finally, DOD and other Federal agencies from time to time have conducted evaluations of instructional technologies. Making the results of such evaluations widely available would be one way to improve knowledge about instructional technology.

Support for Research and Evaluation on Adult Learning

Besides emphasizing the transfer of training technologies and the development of courseware for mature adults, Congress may also wish to consider options to encourage more research on the nature of the adult learning process. Currently, little research is focused on such questions as how to design curricula and instructional approaches so that they are appropriate for adults, how to measure functional literacy levels among adults, and how to evaluate adult performance in educational programs. Moreover, educational researchers have given little attention to the adult learner in undertaking evaluations of different forms of instructional technologies. These and other issues could be addressed through a research program focused specifically on the adult learner[34] (Issue Area II, option c).

Greater attention by the research community to the subject of adult learning could lead to medium and long-term benefits, such as more effective programs for basic skills, continuing education, and worker training and retraining—all important issues in maintaining the skill level of a work force that will be composed of increasing numbers of older workers in the years to come. Therefore, Congress may wish to consider measures to focus greater attention on adults in learning research, particularly research related to basic skills. This could be done in conjunction with, or separately from, the training technology transfer and courseware development options described above.

One option would be for Congress to direct ED to charter one or more national research centers for adult learning and basic skills. It would also be possible to earmark some research funds for adult learning at existing research centers. For example, ED is considering several proposals for new research centers for education, including a proposed National Center for Education and Employment, which would address continuing education as one of its areas of concern. However, establishment of one or more new national centers devoted specifically to research on adult learning and basic skills would focus research, and give greater attention to the importance of this subject in the educational community. Federal funding for the centers could be kept at a modest level—say under $1 million per year.

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[34] A legislative proposal for such a program is contained in H.R. 3700, the proposed Higher Education Amendments Act of 1985 as reported by the House Committee on Education and Labor on Nov. 20, 1985. Section 122 of H.R. 3700 would establish a program of grants to eligible institutions for adult learning research and research application.

Chapter 3

Worker Displacement

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Chapter 3

Worker Displacement

INTRODUCTION

Displaced workers are adults with an established work history who have lost their jobs through no fault of their own, and who face real difficulties in finding new ones. Unlike the temporary job losses during a business recession, the job losses involved in displacement are lasting, reflecting structural changes in the economy. Some workers who have lost jobs in this way find new ones fairly easily. Others—possibly because they live in a depressed area, or because they lack the skills required for available jobs, or because employers consider them too old—remain out of work for months or even years, or settle for ill-paid, dead end jobs. These workers, suffering the effects of structural economic change, are displaced.

In the 5 years 1979 to 1983, over 11 million American workers lost their jobs due to plant closings and employment cutbacks. Some of the lost jobs were restored as the economy recovered from recession. Some of the job losers —especially the younger, better educated, and more skilled—found good new jobs with no great sacrifice in unemployment or reduced earnings; indeed some went back to work at higher pay. But for many of the workers, the job loss was far more disruptive. Especially hard hit were the middle-class blue-collar workers of the frostbelt—the Cleveland or Chicago steelworkers, for example, who once made $13 per hour plus benefits but now, in the middle of their working lives, with families to support and mortgage payments to make, found themselves out of work. Nor were these the only victims of displacement. Thousands of workers in a variety of industries and regions—pharmaceuticals in Rhode Island, communications equipment in New Jersey, textiles in the Carolinas, household appliances in Kentucky, semiconductors in California—lost jobs in plant closings and mass layoffs, often with little chance of landing equally good jobs.

Displaced homemakers are another class of displaced workers, with especially difficult employment problems. These are women whose main job has been keeping house and raising a family, but who have lost their principal source of income through divorce, separation, widowhood, a spouse's disability or prolonged unemployment, or through loss of eligibility for public assistance.[1] At this point, they must find paid work. Many are quite unprepared. Moreover, most do not have unemployment insurance or income from another family member to sustain them while they look for a job. Their problems are no less serious than those of workers losing jobs in factories or offices, and their numbers are large—estimated at more than 2 million to 4 million. However, since the causes and effects of displacement of homemakers are often different from those of mainstream workers, this report considers displaced homemakers separately in chapter 10.

THE DIMENSIONS OF WORKER DISPLACEMENT

From January 1979 to January 1984, 11.5 million American workers lost jobs as a result of plant closings, abolition of positions or shifts, or slack work. Of those, 5.1 million had held the job they lost for at least 3 years and were defined as displaced by the Bureau of Labor Statistics (BLS), in a study based on a 1984 survey of displaced workers.[2]

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[1] Although a few men fit the definition of displaced homemaker, the vast majority are women. For simplicity, this report assumes that displaced homemakers are female.

[2] Paul O. Flaim and Ellen Sehgal, "Displaced Workers of 1979-83: How Have They Fared?" *Monthly Labor Review*, June 1985.

(continued on next page)

By January 1984, 3.1 million of the 5.1 million displaced workers were reemployed, although at least half of them were earning less than the income from their old jobs. About 1.3 million workers, or 25 percent of those displaced over the 5 years, were still unemployed; half a million of these had been out of work for 27 weeks or more. Unemployed displaced workers amounted to 14 percent of all unemployed American workers in January 1984.[3] In addition, 730,000 of the displaced workers had left the labor force, and were no longer counted as unemployed.

No one has surveyed displaced workers since January 1984, but experience in several industries since then shows that economic recovery failed to restore many of the jobs lost in the past few years. Moreover, worker displacement continued, even in better times. For example, in mid-1985 there were 266,000 (46 percent) fewer people at work in steelmaking than 6 years earlier. In the more prosperous auto industry, despite recalls of thousands of laid-off workers, 165,000 (16 percent) fewer people were employed in 1985 than in 1979.

These steel and auto workers were typical of a new class of displaced workers who emerged in the early 1980s. Often, they were white males of prime working age (25 to 54) with a steady work history in a blue-collar factory job, living in traditional manufacturing regions from New York and New Jersey westward to Wisconsin. In addition to these highly visible blue-collar white males, displaced workers included other less publicized but sizable groups. About one-third of them were women, many laid off from clerical or service jobs, or from blue-collar work in the low-wage food, textile, and apparel industries.

These findings are based on the BLS survey of displaced workers, which attempted for the first time to measure directly the number of displaced workers and their characteristics.[4] BLS included in its definition of displaced workers all workers over the age of 20 who had: 1) lost a job between January 1979 and January 1984; 2) worked at least 3 years in that job; and 3) lost the job because the plant or company closed down or moved, the position or shift was abolished, or work was slack. Table 3-1 shows the breakdown by sex, age, and ethnic group of the 5.1 million adult workers who lost their jobs in these ways over the 5 years, and their employment status in January 1984.

The figure of 5.1 million understates the extent of displacement over the period in that it does not count people who held jobs for less than 3 years. From the standpoint of eligibility for assistance programs, many workers with shorter tenure than 3 years on the job fit the broad, flexible definition of dislocated workers under the Job Training Partnership Act of 1982.[5] Such workers are now being served in projects funded under the act. On the other hand, it is not appropriate to count as displaced all the 11.5 million workers who lost jobs due to plant closings or employment cutbacks from

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(continued from previous page)

The survey was: planned cooperatively by the Employment and Training Administration and the Bureau of Labor Statistics (U.S. Department of Labor), conducted by the Census Bureau, and analyzed by the BLS.

[3] Among other unemployed workers were those who lost jobs due to the recession and probably would be recalled, people who quit their jobs voluntarily, workers fired for cause, and new entrants to the labor market looking for their first job.

[4] Before the BLS survey of displaced workers, estimates of displaced workers were based on proxy measurements. Some widely quoted estimates ranged from about 100,000 (for 1983) to 815,000 (for 1984), with the divergence in numbers largely due to differences in definition. See Marc Bendick, "Government's Role in the Job Transitions of America's Dislocated Workers," testimony at joint hearings on Technology and Employment, U.S. Congress, House Committee on Science and Technology and House Committee on the Budget, June 9, 1983; and Steven Sheingold, Congressional Budget Office, "Dislocated Workers: An Assessment of the Current Situation and Policy Implications for the Future," unpublished report, April 1984, p. 19.

[5] The definition of dislocated workers in JTPA, Sec. 302, is as follows:

(a) Each State is authorized to establish procedures to identify substantial groups of eligible individuals who -

(1) have been terminated or laid-off or who have received a notice of termination or lay-off from employment, are eligible for or have exhausted their entitlement to unemployment compensation, and are unlikely to return to their previous industry or occupation;

(2) have been terminated, or who have received a notice of termination of employment, as a result of any permanent closure of a plant or facility; or,

(3) are long-term unemployed and have limited opportunities for employment or reemployment in the same or a similar occupation in the area in which such individuals reside, including any older individuals who may have substantial barriers to employment by reason of age.

Table 3-1.—Employment Status of Displaced Workers by Age, Sex, and Ethnic Origin, January 1984

Age, sex, race	Total (in thousands)[a]	Percentage employed	Percentage unemployed	Percentage not in labor force[b]
Total, 20 years and older . .	5,091	60.1	25.5	14.4
20-24 years	342	70.4	20.2	9.4
25-54 years	3,808	64.9	25.4	9.6
55-64 years	748	40.8	31.8	27.4
65 years and older	191	20.8	12.1	67.1
Men:				
Total, 20 years and older	3,328	63.6	27.1	9.2
20-24 years	204	72.2	21.7	6.1
25-54 years	2,570	68.2	26.8	5.0
55-64 years	461	43.6	34.1	22.3
65 years and older	92	16.8	12.9	70.3
Women:				
Total, 20 years and older	1,763	53.4	22.5	24.2
20-24 years	138	67.8	18.0	14.2
25-54 years	1,239	58.0	22.6	19.4
55-64 years	287	36.3	28.0	35.7
65 years and older	99	24.6	11.3	64.1
White:				
Total, 20 years and older	4,397	62.6	23.4	13.9
Men	2,913	66.1	25.1	8.8
Women	1,484	55.8	20.2	24.1
Black:				
Total, 20 years and older	602	41.8	41.0	17.1
Men	358	43.9	44.7	11.4
Women	244	38.8	35.6	25.6
Hispanic origin:				
Total, 20 years and older	282	52.5	33.7	14.1
Men	189	55.2	35.5	9.3
Women	93	46.3	30.0	23.6

[a] Data refer to persons with tenure of 3 or more years in one job, who lost or left that job between January 1979 and January 1984 because of plant closings or moves, slack work, or the abolishment of their positions or shifts.

[b] Workers may retire from the labor force because of voluntary choice, retirement, or discouragement.

Note: Breakdown data on the ethnic groups will not sum to the corresponding totals because data for "other races" are not presented and Hispanics may be included in both white and black populations. Thus, Hispanics may be counted more than once in the table.

SOURCE: Paul O. Flaim and Ellen Sehgal, "Displaced Workers of 1979-83: How Well Have They Fared?" *Monthly Labor Review*, June 1985.

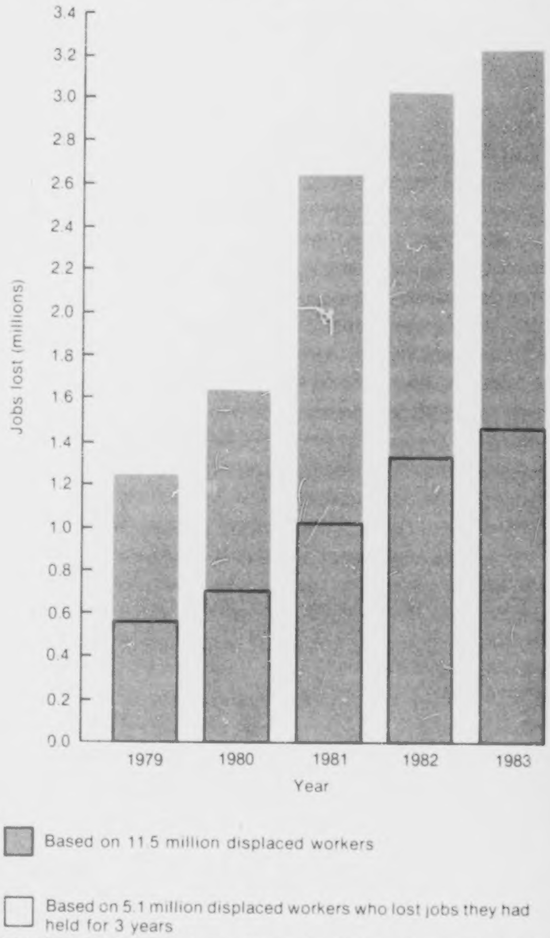
1979 to 1983, since some of the job losses—especially those due to slack work—were probably cyclical and temporary. Moreover, some workers displaced from their jobs found new ones quickly, with pay as good or better as on the old job.

For many of the displaced workers, however, the consequences of job loss were painful and long lasting. Of the 5.1 million termed displaced by BLS, the 500,000 who had been unemployed for half a year or more in January 1984 were clearly having difficulty adjusting to the job loss. It is uncertain how many of the 730,000 workers who dropped out of the labor force did so by choice, and how many stopped looking for work out of discouragement or retired earlier than they wished. Of approximately 2 million former full-time wage and salary earners who reported their pay on the jobs they lost and on new jobs they held in January 1984, 941,000 (46 percent) had taken pay cuts—in the case of 621,000 of these workers, large cuts of 20 percent or more. In addition, many former full-time workers (357,000 out of 2.8 million reporting, or 13 percent) took part-time jobs and thus had a drop in their earnings. The figures are not additive, because they are based on different numbers of respondents, but it appears that at least half the workers who were reemployed earned less income on the new job than the old—and this takes no account of the effects of inflation.

Another analysis of the survey results, done for the Bureau of International Labor Affairs of the Department of Labor, excluded displaced workers over 61 years old but included all others, regardless of tenure on the old job. Preliminary findings from this analysis were that 29 percent of the blue-collar workers displaced over the 5 years were unemployed as of January 1984 and 10 percent were out of the labor force; for white-collar and service workers, 20 percent were unemployed and 12 percent were out of the labor force. The average drop in earnings of those reemployed, adjusted for inflation, was 15 percent for blue-collar workers and 12 percent for white-collar and service workers.[6]

Another way at looking at the dimensions of displacement is to consider the flow of displaced workers over time. As figure 3-1 indicates, the number of displaced workers rose every year from 1979 through 1983. Of 11.5 million workers losing jobs over the 5 years, 1.2 million lost their jobs in 1979, and 3.3 million lost jobs in 1983. Possibly, the losses in the earlier years are understated; respondents tend to forget events that occurred in the more distant past, so that workers surveyed in 1984 may have failed to recall some job losses that happened in the earlier years.[7] In addition, some of the losses in the later years were no doubt due to the severe recession that began to lift only in 1983, especially late that year. It is not always possible, however, to distinguish cleanly between cyclical and structural loss of jobs, particularly when two recessions follow back to back, as in 1980 and from mid-1981 through part of 1983. The effects on workers of prolonged unemployment are much the same, whether analysts eventually conclude that the unemployment was cyclical or structural. The worker in any case has to find another job.[8]

Figure 3-1.—Number of Workers Displaced, 1979-83



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, unpublished data from January 1984 survey of displaced workers.

According to the BLS survey, displacement hit some groups of workers, some industries, and some regions harder than others. Younger workers fared better than older ones in finding new jobs, men did better than women, whites did better than Hispanics and much better than blacks (table 3-1). Although unemployment rates for women were lower than for men (23 v. 27 percent), reemployment of women was much lower (53 v. 64 percent); many women, nearly one-quarter of those displaced, dropped out of the labor force.

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[6] Information provided by U.S. Department of Labor, Bureau of International Labor Affairs, from a preliminary draft report, Michael Podgursky and Paul Swain, "Labor Market Adjustment and Job Displacement: Evidence From the January, 1984 Displaced Worker Survey," August 1985. This study analyzed results of the BLS survey for all workers aged 20 to 61 who were displaced from 1979 to 1983 due to plant closings, abolition of a position or shift, or slack work, regardless of tenure on the job. The analysis covered 9.5 million workers, considering separately 5.8 million blue-collar workers and 3.8 million white-collar and service workers.

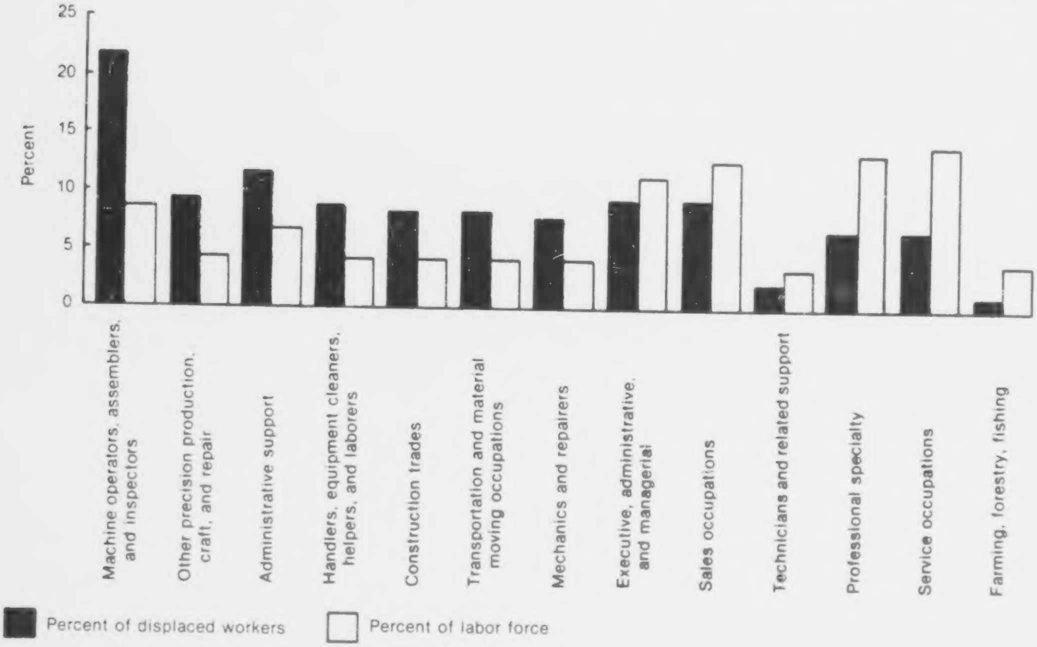
[7] Paul Flaim, Chief, Division of Data Development and Users' Services, Bureau of Labor Statistics, letter to Julie F. Gorte, Project Director, Office of Technology Assessment, Aug. 30, 1985.

[8] For analysis and discussion of this point, see Lynn E. Browne, "Structural Change and Dislocated Workers," *New England Economic Review*, January/February 1985.

The more skilled or professional a worker, the less likely he or she is to lose a job, and the more likely to find a new job after displacement. Production workers—skilled, semiskilled, and unskilled—lost jobs in far greater proportion to their numbers than managers, professionals, and technicians (figure 3-2). Moreover, 75 percent of managers and professionals who lost jobs landed on their feet, with only 17 percent still unemployed in January 1984 (table 3-2). Two-thirds of technicians and salesworkers found jobs, as did more than 60 percent of skilled blue-collar workers. Among the 1.8 million less skilled workers, including machine operators, assemblers, and laborers, only 55 percent had jobs, and 32 percent were unemployed. Among clerical workers, who are largely female, 54 percent were employed, 26 percent were unemployed, and 20 percent were out of the labor force. Service workers, also predominantly female, showed a similar employment pattern.

Manufacturing workers experienced job losses far out of proportion to their numbers—2.5 million, nearly half of all the workers displaced, lost manufacturing jobs (table 3-3). This contrasts with the 20 percent share of manufacturing jobs in total private nonagricultural employment. Within manufacturing, the job losses were skewed to durable goods, with the biggest losses occurring in nonelectrical machinery (396,000), automobiles (224,000), and primary metals (219,000), mostly steel. The worst reemployment record was in primary metals; only 46 percent in this group had found jobs by January 1984, while 39 percent remained unemployed. In the nondurable goods

Figure 3-2.—Percentage of Displaced Workers and Percentage of Labor Force, by Occupation



SOURCE: U.S. Department of Labor, BLS, *Employment and Earnings*, January 1985, and Paul O. Flaim and Ellen Sehgal, "Displaced Workers of 1979-83: How Well Have They Fared?" *Monthly Labor Review*, June 1985, p. 7.

Table 3-2.—Employment Status of Displaced Workers by Occupation of Lost Job, January 1984

Occupation of lost job	Total (in thousands)[a]	Percentage employed	Percentage unemployed	Percentage not in labor force[b]
Total, 20 years and older	5,091	60.1	25.5	14.4
Managerial and professional	703	74.7	16.6	8.8
Technical, sales, and administrative support	1,162	60.6	21.1	18.3
Technicians and related support	122	67.9	25.3	6.8
Sales occupations	468	66.7	14.6	18.7
Administrative support, including clerical	572	54.1	25.5	20.5
Precision production, craft, and repair	1,042	61.6	26.1	12.3
Mechanics and repairers	261	61.3	29.3	9.4
Construction trades	315	63.2	23.8	13.0
Other	467	60.8	25.8	13.4
Operators, fabricators, and laborers	1,823	54.6	31.6	13.7
Machine operators, assemblers, and inspectors	1,144	56.0	27.5	15.6
Transportation and material moving	324	63.8	28.7	7.5
Handlers, equipment cleaners, helpers, and laborers	355	41.8	47.6	10.6
Service occupations	275	51.0	24.1	24.9
Farming, forestry, fishing	68	b	b	b

[a] Data refer to persons with tenure of 3 or more years in one job, who lost or left that job between January 1979 and January 1984 because of plant closings or moves, slack work, or the abolishment of their positions or shifts.
[b] Data not shown where base is less than 75,000.

SOURCE: Paul O. Flaim and Ellen Sehgal, "Displaced Workers of 1979-83: How Well Have They Fared?" *Monthly Labor Review*, June 1985.

sector, 212,000 textile and apparel workers lost their jobs, as did 175,000 workers in food and kindred products. In all manufacturing, about 59 percent of the displaced workers were reemployed, while 27 percent remained out of work.

The hardest hit geographical area, both in absolute numbers of displaced workers and in their relation to the size of the area labor force, was the East North Central region—the States of Ohio, Indiana, Michigan, Illinois, and Wisconsin (figures 3-3 and 3-4 and table 3-4). In this region, 1.2 million workers were displaced, and only half were reemployed by January 1984; 189,000 (16 percent of the total number displaced in the region and 47 percent of those unemployed) had been out of work for more than half a year. In the Middle Atlantic region—New York, New Jersey, and Pennsylvania—nearly 800,000 workers were laid off, but the proportion of the work force affected was smaller, and the reemployment record better. A less publicized area with more than its share of displaced workers was the East South Central region—Alabama, Mississippi, Kentucky, and Tennessee. The number of workers displaced here (378,000) was smaller than in the other two areas, but unemployment was persistent; 15 percent of the displaced workers (over half of those still unemployed in 1984) had been jobless for 27 weeks or more. This was nearly as high a rate of persistent unemployment as in the East North Central region.

Altogether, the survey indicates that displacement was a substantial and enduring problem from 1979 to 1984.

PERSONAL COSTS OF DISPLACEMENT

Unemployment

Prolonged unemployment is the most obvious of the personal costs borne by displaced workers. These people typically remain out of work much longer than other unemployed workers—long enough for many to run out of unemployment insurance and to suffer serious losses in family income.

Of the 5.1 million adult workers displaced between 1979 and 1984, 43 percent (2.2 million) were without work for a total of at least 27 weeks during the 5 years (the weeks without

Table 3-3.—Employment Status of Displaced Workers by Industry of Lost Job, January 1984

Industry of lost job	Total (in thousands)[a]	Percentage employed	Percentage unemployed	Percentage not in labor force[b]
Total, 20 years and older	5,091	60.1	25.5	14.4
Nonagricultural private wage and salary workers	4,700	59.8	25.8	14.4
Mining	150	60.4	31.0	8.6
Construction	401	55.0	30.7	14.3
Manufacturing	2,483	58.5	27.4	14.1
Durable goods	1,675	58.2	28.9	12.9
Lumber and wood products	81	67.9	19.1	13.0
Furniture and fixtures	65	b	b	b
Stone, clay, and glass	75	47.5	30.5	22.0
Primary metal industries	219	45.7	38.7	15.6
Fabricated metal products	173	62.0	32.2	5.8
Machinery, except electrical	396	62.3	27.4	10.3
Electrical machinery	195	48.2	34.5	17.3
Transportation equipment	354	62.6	26.0	11.4
Automobiles	224	62.9	24.0	13.1
Other transportation equipment	130	62.1	29.4	8.5
Other durable goods	116	b	b	b
Nondurable goods	808	59.1	24.2	16.7
Food and kindred products	175	52.5	32.6	15.0
Textile mill products	80	59.8	26.2	13.9
Apparel and other finished textile	132	63.0	14.2	22.8
Paper and allied products	60	b	b	b
Printing and publishing	103	58.0	22.9	19.1
Chemical and allied products	110	64.0	27.3	8.7
Rubber and miscellaneous plastics	100	62.8	18.3	18.8
Other	49	b	b	b
Transportation and public utilities	336	57.9	26.8	15.3
Wholesale and retail trade	732	61.4	21.6	16.9
Wholesale trade	234	69.6	22.0	8.4
Retail trade	498	57.6	21.5	20.9
Finance, insurance, and real estate	93	78.5	12.4	9.1
Services	506	65.0	20.5	14.5
Agricultural wage and salary workers	100	69.9	22.9	7.2
Government workers	248	63.3	18.7	18.0

[a]Data refer to persons with tenure of 3 or more years in one job, who lost or left that job between January 1979 and January 1984 because of plant closings or moves, slack work, or the abolishment of their positions or shifts.
[b]Data not shown where base is less than 75,000.

SOURCE: Paul O. Flaim and Ellen Sehgal, "Displaced Workers of 1979-83: How Well Have They Fared?" *Monthly Labor Review*, June 1985.

work were not necessarily continuous). Nearly one-quarter of the workers (1.2 million) were without work for a year or more, and the median weeks without work was 24.1 weeks (table 3-5).[9] Of the 3.5 million displaced workers who received unemployment insurance, half exhausted their benefits.

A score of studies of individual plant closings done over the past quarter of a century supplement the information gathered in the BLS survey of displaced workers. Wilcock and Franke followed more than 2,600 workers in five cities after the shutdowns of four meatpacking plants and a laundry equipment manufacturing plant in 1959 and 1960.[10] A year

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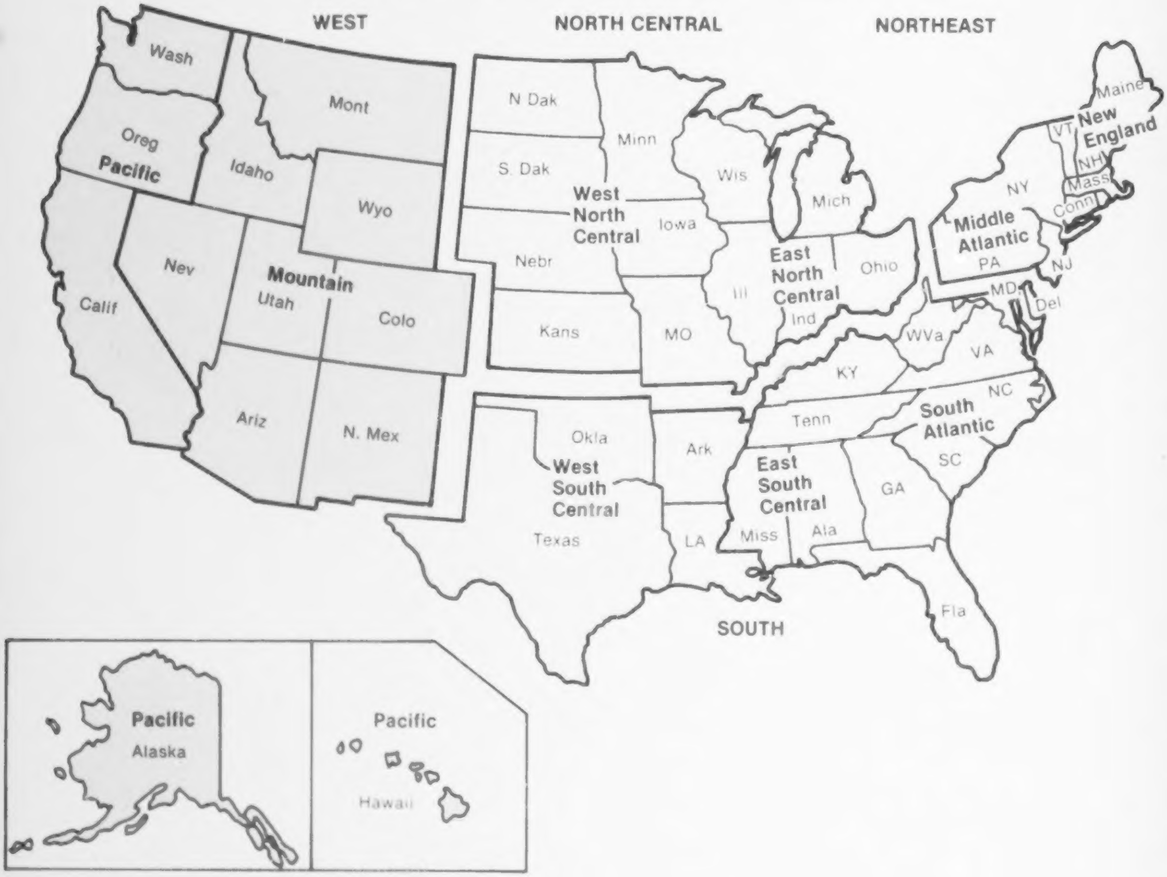
[9] The numbers in tables 3-4 and 3-5 are not comparable. Table 3-4 refers to displaced workers who were unemployed in January 1984, and had been continuously unemployed for 5 weeks or less, or 27 weeks or more, at that time. Table 3-5 refers to the total weeks without work experienced by displaced workers between 1979 and 1984, not necessarily continuously. Also, the terms "unemployed" and "without work" are not synonymous, because the latter might include a period of joblessness when workers were not looking for work, and so would be defined as out of the labor force, not unemployed.

[10] Richard C. Wilcock and W.H. Franke, *Unwanted Workers: Permanent Layoffs and Long-Term Unemployment* (New York: Glencoe Free Press, 1963).

Figure 3-3.—Regional Divisions of the United States


WEST
NORTH CENTRAL
NORTHEAST
Wash
Mont
Oreg
Pacific
Idaho
Wyo
Nev
Mountain
Utah
Colo
Calif
Ariz
N. Mex
N Dak
S. Dak
Minn
West North Central
Nebr
Iowa
Kans
MO
Wis
Mich
Ill
East North Central
Ind
Ohio
Maine
VT
New England
NH
Mass
Conn
NY
Middle Atlantic
PA
NJ
MD
Del
WVa
VA
KY
NC
Tenn
South Atlantic
SC
GA
Okla
West South Central
Ark
Texas
LA
East South Central
Miss
Ala
Fla
SOUTH
Pacific
Alaska
Pacific
Hawaii

after the layoffs, unemployment among these displaced workers ranged from 22 to 65 percent, largely depending on the state of the local economy. But even in the most prosperous of the cities sampled—Peoria, Illinois, where the community-wide unemployment rate was below 2 percent shortly after the plant closing and was still only 3.8 percent 1 year later—22 percent of the displaced workers were out of work a year after the layoffs. In every one of the five cities, the unemployment rate for displaced workers was far higher than the overall local rate, from 6 times as high in Peoria to 12 and 13 times as high in East St. Louis, Illinois, and Oklahoma City.

Other case studies underscore the point that displaced workers experience unusual and prolonged unemployment. Two years after the 1956 shutdown of the Packard automobile manufacturing company, which displaced 4,000 workers, Aiken, Ferman, and Sheppard questioned a representative sample of 260 ex-Packard workers.[11] Only 45 percent had jobs. Another 32 percent had found work at some time during the 2 years, but were currently

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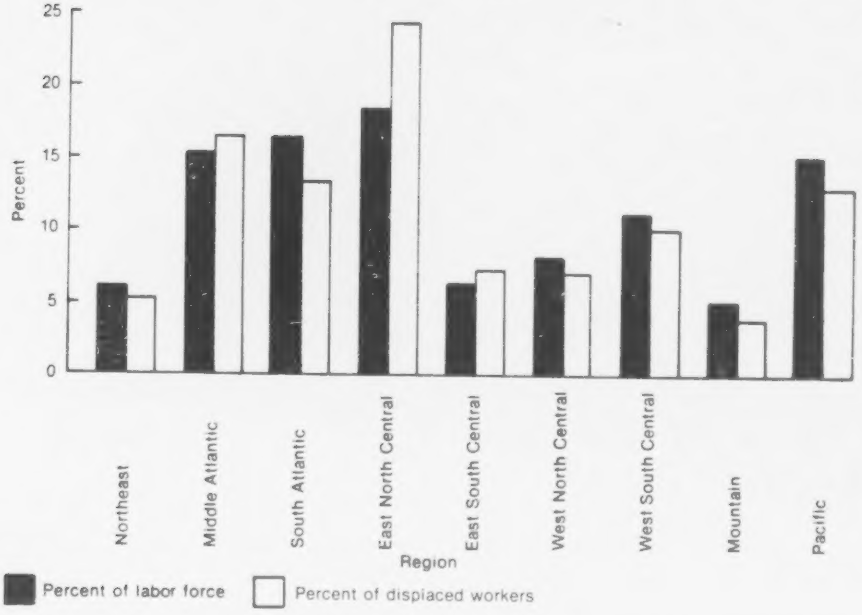
[11] Michael Aiken, Louis A. Ferman, and Harold L. Sheppard, *Economic Failure, Alienation, and Extremism* (Ann Arbor: MI University of Michigan Press, 1968). These figures apply to white workers; 45 black workers in the Packard closing were surveyed separately.

Figure 3-4.—Percentage of Labor Force and Percentage of Displaced Workers, by Region, 1984



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, and unpublished data; and U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*, various issues.

unemployed. (With no seniority in their new jobs, they were the first to be laid off.) Twenty-three percent had not yet found any job. At the time of the survey, the auto industry was depressed, and Michigan's unemployment rate was 13.5 percent. The ex-Packard workers' unemployment rate was 55 percent.[12]

More recently, Aronson and MacKersie tracked workers who were displaced when three large companies (Westinghouse, Brockway Motors, and GAF) closed plants in New York State in 1976 and 1977, laying off a total of 2,800 workers.[13] Over one-fifth of the workers sampled remained without jobs for a year or more, while local unemployment rates were between 6 and 8 percent.[14]

Hansen and Bentley reported on the closing of four sugar beet processing plants in Utah, Idaho, and Washington in 1979, in which approximately 3,000 workers were laid off.[15] Surveying the displaced workers 1 to 1½ years after the shutdowns, these authors found unemployment ranging from 19 to 42 percent at the various sites. Overall, at the four sites 27 percent of the former sugar plant workers were

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[12] Ibid., p. 31 ff.

[13] Robert Aronson and Robert MacKersie, *Economic Consequences of Plant Shutdowns in New York State* (Ithaca, NY: New York State School of Industrial and Labor Relations, Cornell University, 1980), pp. 11-12.

[14] The reported unemployment rate for these displaced workers was higher: 31 percent for 1 year or longer after the layoffs. However, the authors believe that this figure included some workers who were in full-time training and should not have been reported as unemployed. Ibid., pp. 33-34.

[15] Gary B. Hansen and Marion T. Bentley, *Mobilizing Community Resources to Cope With Plant Shutdowns: A Demonstration Project* (Logan, UT: Business and Economic Development Series, Utah State University, 1981).

Table 3-4.—Employment Status and Area of Residence in January 1984 of Displaced Workers[a] (in thousands)

		Regional totals (in thousands)								
Characteristic	Total	New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific
Total	5,091	260	794	1,206	426	664	378	484	211	667
Employment status in January 1984:										
Employed	3,058	171	428	621	276	461	209	344	148	399
Unemployed	1,299	48	225	400	96	117	113	85	33	181
Period of unemployment, percentage of unemployed workers:										
Less than 5 weeks	22	b	24	21	13	29	17	25	b	18
27 weeks or more	39	b	37	47	48	26	52	30	b	28
Not in labor force	733	41	141	185	54	85	56	55	30	86

[a] Data refer to persons with tenure of 3 or more years in one job, who lost or left that job between January 1979 and January 1984 because of plant closings or moves, slack work, or the abolishment of their positions or shifts.

[b] Data not shown where base is less than 75,000.

SOURCE: Paul O. Flaim and Ellen Sehgal, "Displaced Workers of 1979-83: How Well Have They Fared?" *Monthly Labor Review*, June 1985.

Table 3-5.—Displaced Workers, 1979-83: Weeks Without Work Since Job Loss (numbers in thousands)

		Weeks without work since job loss				
	Total[a]	Less than 5	5-26	27-52	More than 52	Median number of weeks
Total	5,091	1,173	1,619	983	1,211	24.1
Men	3,328	766	1,115	644	732	21.8
Women	1,763	407	504	339	479	26.3

[a] Data refer to persons with tenure of 3 or more years in one job, who lost or left that job between January 1979 and January 1984 because of plant closings or moves, slack work, or the abolishment of their positions or shifts.

SOURCE: Paul O. Flaim and Ellen Sehgal, "Displaced Workers of 1979-83: How Well Have They Fared?" *Monthly Labor Review*, June 1985.

out of work, 59 percent had jobs, and the rest had dropped out of the labor market.

Hansen and Bentley discovered that neither the local Employment Service nor anyone else in the four communities had accurate information about unemployment among displaced workers after the shutdowns. Some community leaders greatly underestimated it. Nor were they informed about other problems the workers faced. "This lack of reliable data hindered [community] responses . . . and left unanswered the pervasive and factually untrue assertions that there were no problems of unemployment or other needs."

Lower Pay

A second major cost of displacement is that many workers who are reemployed take worse jobs, at lower pay and lower status, than they had in their old jobs. For example, after the shutdowns of the meatpacking and laundry equipment plants in 1959 and 1960, displaced workers who found jobs settled for pay that averaged 9 to 41 percent less (depending on the city) than the pay in their old jobs.[16] Similarly, Dorsey's study of workers displaced in 1961 by a Mack truck plant closing in Plainfield, New Jersey, showed a 40-percent drop in the wages of reemployed workers.[17]

The BLS survey of displaced workers indicated rather more moderate losses of earnings (see the earlier discussion and table 3-6). As noted above, the analysis of the BLS survey results sponsored by the Labor Department's Bureau of International Labor Affairs (ILAB) adjusted reemployment earnings for inflation, and found average declines of 12 percent for white-collar and service workers and over 15 percent for blue-collar workers.[18] This analysis covered only former full-time workers who found new full-time jobs and reported their earnings on both the old and new jobs. It did not take into account earnings losses of former full-time workers who were reemployed in part-time jobs.

The occupational group that suffered the greatest losses in earnings were blue-collar semiskilled and unskilled workers, including machine operators, assemblers, and laborers. In this group, 37 percent took pay cuts of 20 percent or more (not adjusted for inflation), compared with 26 percent of managers and professionals and 30 percent of workers in all occupations (table 3-6). The ILAB study, showing average reemployment earnings for occupational groups adjusted for inflation, found that professionals had only a 3-percent drop in earnings, while the decline for managers was much greater—16 percent. This compares with 18-percent declines in average earnings of unskilled and semiskilled blue-collar operatives and laborers, but only 10 percent for skilled blue-collar craft workers.

By industry, workers displaced from durable goods manufacturing jobs, which are generally well paid, had the steepest drop in earnings. As table 3-7 shows, the 980,000 workers who formerly worked in durable goods industries, were then displaced, and afterward found new jobs, reported a drop in median earnings from

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[16] Wilcock and Franke, op. cit., p. 144.

[17] John W. Dorsey, "The Mack Truck Case: A Study in Unemployment," *Studies in the Economics of Income Maintenance*, Otto Eckstein (ed.) (Washington, DC: The Brookings Institution, 1967), pp. 202-203.

[18] Information from a preliminary draft report of the results (Podgursky and Swain, op. cit.) was provided to OTA by the U.S. Department of Labor, Bureau of International Labor Affairs.

Table 3-6.—Earnings of Displaced Workers Holding Full-Time Wage and Salary Jobs in January 1984, Jobs Lost and Replacement Jobs, by Occupation[a] (numbers in thousands)

Occupation of lost job	Total reporting	Earnings on replacement job relative to earnings on job lost							
		20 percent or more below		Below but within 20 percent		Equal or within 20 percent above		20 percent or more above	
		Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Total who lost full-time wage and salary jobs[b]	2,045	621	30	320	16	571	28	533	26
Managerial and professional	342	90	26	45	13	102	30	105	31
Technical, sales, and administrative support	427	106	25	65	15	120	28	136	32
Technicians and related support	57	18	32	6	10	15	26	18	32
Sales occupations	177	42	24	27	15	43	24	65	37
Administrative support, including clerical	192	45	23	32	17	62	32	53	28
Service occupations	64	17	27	13	20	18	28	16	25
Precision production, craft, and repair	470	136	28	82	17	139	30	113	24
Mechanics and repairers	122	33	27	23	19	38	31	28	23
Construction trades	136	33	24	21	15	50	37	32	24
Other	212	70	33	38	18	51	24	53	25
Operators, fabricators, and laborers	722	267	37	112	16	187	26	156	22
Machine operators, assemblers, and inspectors	470	164	35	76	16	125	27	106	23
Transportation and material moving occupations	147	55	37	24	16	38	26	30	20
Handlers, equipment cleaners, helpers, and laborers	106	49	46	13	12	24	23	20	19
Farming, forestry, and fishing	21	5	24	3	14	5	24	8	38

[a] Data refer to persons with tenure of 3 or more years in one job, who lost or left that job between January 1979 and January 1984 because of plant closings or moves, slack work, or the abolishment of their positions or shifts.

[b] Includes former full-time workers, who lost jobs they had held for at least 3 years, who were reemployed in a full-time wage or salary job, and who reported earnings both on the old and new jobs.

SOURCE: Paul O. Flaim and Ellen Sehgal, "Displaced Workers of 1979-83: How Well Have They Fared?" *Monthly Labor Review*, June 1985

Table 3-7.—Reemployed Displaced Workers, by Selected Industry of Lost Jobs, and Weekly Earnings on Lost Job and Job Held in January 1984[a]

Industry of lost jobs	Reemployed workers (in thousands)	Median weekly earnings	
		Lost job	Job held in January 1984
Durable goods	980	$344	$273
Primary metals	100	407	246
Transportation equipment	222	399	319
Nondurable goods	493	264	254
Textile mill products	48	181	187
Apparel and other finished textile products	83	202	197

[a] Data refer to persons with tenure of 3 or more years in one job, who lost or left that job between January 1979 and January 1984 because of plant closings or moves, slack work, or the abolishment of their positions or shifts.

SOURCE: Paul O. Flaim and Ellen Sehgal, "Displaced Workers of 1979-83: How Well Have They Fared?" *Monthly Labor Review*, June 1985.

$344 per week on the old job to $273 per week on the new one. By contrast, the much lower median weekly earnings of textile mill workers did not decline after displacement but rose slightly from $181 to $187 per week. (These wages are in current dollars, without adjustment for inflation.)

Many displaced workers who eventually find new jobs at wages equal to their former wages still lose earnings over time, because they would have received pay raises as well as adjustments for inflation if they had been able to keep their old jobs. Two large studies of thousands of displaced factory workers in the 1960s and early 1970s compared the earnings of these workers with earnings of workers who kept their jobs in the same industries. Both studies found substantial losses for the displaced workers in the first 2 years after layoff.

Holen, Jehn, and Trost, studying 9,479 workers from 42 plants that closed between 1969 and 1972, found that male workers in nine industries lost, on the average, 24 percent of expected earnings the first year after the plant closed, and 14 percent the second year.[19] The average losses for women were 27 percent the first year and 11 percent the second. First-year losses for some large groups of workers (female workers in textiles and weaving, men's clothing, and radio and television manufacturing) were nearly 40 percent.

After the second year, this study found that the earnings gap between the victims of plant closings and workers who kept their jobs dwindled rapidly; by the third or fourth year the losses for displaced workers were small or negligible. In fact, the average earnings of displaced women workers had surpassed those of the comparison group by the fourth year. The study concluded that the earnings losses for workers displaced in plant closings are not permanent, but can be large. In each of the first 2 years after the plant closings, earnings losses were at least as high as 20 percent for displaced women workers in four of the nine industries, and for men in three.

Jacobson's earlier study found rather more persistent earnings losses for displaced workers.[20] This study looked at the earnings experience of 1,024 prime-age male workers who lost jobs (not necessarily due to plant closings) between 1962 and 1966 in 11 diverse manufacturing industries. The job losers' earnings were compared with those of similar workers in the same industries who kept their jobs. Two years after layoff, the average displaced worker in all 11 industries had lost earnings, with losses ranging from 1 percent in television receiver manufacturing to 47 percent in steelmaking.

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[19] Arlene Holen, Christopher Jehn, and Robert P. Trost, *Earnings Losses of Workers Displaced by Plant Closings* (Alexandria VA: The Public Research Institute, 1981).

[20] Louis S. Jacobson, "Earnings Losses of Workers Displaced From Manufacturing Industries," in U.S. Department of Labor, *The Impact of International Trade and Investment on Employment* (Washington, DC: U.S. Government Printing Office, 1978); Louis Jacobson and Janet Thomason, *Earnings Loss Due to Displacement*, report prepared for the U.S. Department of Labor (Alexandria, VA: The Public Research Institute, 1979).

Six years afterward, several groups of workers had not yet recouped. Automobile, steel, meatpacking, aerospace, and petroleum refining workers still had average earnings losses of 12 to 18 percent. Generally, the losses were greatest in better paying, strongly unionized industries. But even workers displaced from lower wage industries such as women's clothing, electronics, and shoes, had only pulled about even. Workers displaced from two industries that faced strong foreign competition in the 1970s (television receiver manufacturing and cotton weaving) were substantially better off after 6 years than the workers in the comparison group.

Why the two studies had different findings on the persistence of earnings loss is not entirely clear. Possibly, the greater prosperity of the mid-1960s had the paradoxical effect of exaggerating the earnings losses of the displaced workers that Jacobson studied. Those who kept their jobs made large wage gains relative to the job losers, whose worklives were interrupted. In the less prosperous 1970s, the job keepers did not do much better than the job losers, except for the first year or two. Both studies did find substantial losses for most displaced workers in the first 2 years and higher losses in high-wage unionized industries.

The Congressional Budget Office (CBO) found that displaced workers generally experience long-term wage losses, and the greater their seniority in the old job, the greater their loss.[21] CBO estimated that, 2 to 6 years after displacement, workers with less than 10 years tenure on their old jobs were earning 91 percent of the wages they would have made had they not been displaced; workers with 10 to 20 years tenure were earning 81 percent; and those with 20 years or more tenure were earning 75 percent.

For most displaced workers, the first few months of job loss are cushioned by unemployment insurance; some also get supplementary unemployment benefits or severance pay from their former employers, and some receive special government aid such as Trade Adjustment Assistance (TAA). Despite these cushions, the combined effects of unemployment (often protracted unemployment) and lower wages after reemployment depress the incomes of displaced workers significantly. Rosen's recent study of blue-collar women workers laid off from the clothing and electrical goods industries in New England supports this conclusion. Even with a combination of unemployment insurance, TAA benefits, and reemployment within a few months, the average worker lost 20 percent of her annual earnings in the year following job loss.[22] The Aronson-MacKersie study of displaced workers in New York State disclosed a similar (18-percent) drop in family income.[23]

Loss of Benefits

Loss of benefits is another serious economic burden for the displaced worker. Older workers' seniority is wiped out, which often means loss of protection against future layoffs. Health benefits usually stop; individual replacement policies may cost more than twice as much. Pension benefits suffer.

To many displaced workers, the loss of health benefits is a most urgent concern. Of the 5.1 million adult workers displaced from 1979 to 1983, 4 million—78 percent—were covered by group health insurance on their old jobs. By January 1984, only 65 percent were covered under any plan, group or individual. Of those who were unemployed, 60 percent had no coverage, and 40 percent of those out of the labor force were not covered. Among black unemployed workers who were previously covered, 75 percent had no coverage at the time of the survey. The ILAB-sponsored analysis of the same survey examined losses of group health insurance coverage. This study found that 70 percent of blue-collar workers had group coverage on their old jobs; of those previously covered by group insurance, 42 percent had lost it. Of white-collar and service workers, 67 percent formerly had group coverage, and 30 percent of them had lost it.[24]

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[21] U.S. Congress, Congressional Budget Office, *Dislocated Workers: Issues and Federal Options* (Washington: CBO, 1982), pp. 13, 17-18. CBO staff calculated the wage losses based on unpublished results of a survey of 916 displaced workers in 13 States, from New England to California, in a variety of industries. The survey was conducted by the Institute for Policy Research and Evaluation of Pennsylvania State University in 1975.

[22] Ellen I. Rosen, *Hobson's Choice: Employment and Unemployment Among "Blue Collar" Women Workers in New England*, report prepared for the U.S. Department of Labor, Employment and Training Administration (Boston, MA: Social Welfare Research Institute, Boston College, 1982), pp. 133-134.

[23] Aronson and McKersie, op. cit., p. 51.

Pension rights of displaced workers now have some protection by law, but are by no means completely secure. Before 1974, when the Federal Government began to regulate private pension plans under the Employment Retirement Income Security Act (ERISA), displaced workers could lose all their pension rights when a company closed its doors. This happened to the workers displaced in the Packard shutdown in 1956, and to most of the Massachusetts shoe workers displaced by shutdowns in the early 1970s.[25] Even under ERISA, however, workers are still likely to lose important pension benefits in a plant closing. Most workers cannot pick up their same pension plans in new jobs; portable pensions that follow the individual worker are rare, and multiemployer pension plans cover less than one-quarter of all participants in private plans. Unless displaced workers are able to continue in their same plans on new jobs, they cannot continue to add years of service as a base for higher retirement pay. They also lose credit for their years of service before 1974, when ERISA took effect. Younger workers who were on their way to eligibility for pensions (after a vesting period, generally 5 to 10 years) may have to go back to zero.[26]

Early Retirement

The older displaced worker who has the option of early retirement is better off than one who remains out of work for months or who has no choice but to take a substantial pay cut to get another job. Many unions have bargained for early retirement as a benefit for older workers who are permanently laid off. Yet, for older people who are still vigorous and eager to work at full pay, pensioning off may be only half a loaf.

In general, for most people, retirement is apparently a positive experience. Parnes and his associates followed a nationally representative sample of men for 15 years, from 1966 to 1981, as the men passed from middle age into old age.[27] Three-fourths of those who had retired said that retirement met or exceeded their expectations; 70 percent said they would retire at the same age if they had it to do over again. The great majority also reported they were able to get by on their retirement incomes. Typically, family income was three-fifths of what it had been the last year before retirement. The major exception to the general experience of economic and psychological satisfaction with retirement was seen among men who had retired early because of ill health.

Despite the number and richness of studies of retirement in general, data on early retirement after displacement are scanty. Most people, except those in ill health, retire by choice. Whether those who retire involuntarily because their jobs have disappeared are as satisfied as the general run of retirees, or whether they share the dissatisfactions of those who retired early due to ill health, is not known.

Relocation

Ordinarily, no more than 10 percent of displaced blue-collar workers move to new communities in search of other jobs. Americans may be mobile compared with the citizens of other industrial democracies, but it is easy to exaggerate this characteristic. In a recent 5-year period, 47 percent of American households moved, compared with 33 percent in Japan and 38 percent in the United Kingdom, but a relatively small number of people who moved frequently accounted for a large proportion of the moves in the United States. Furthermore, half the moves took place within local areas; only 20 percent were across a State line.[28]

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[24] Information provided by U.S. Department of Labor, Bureau of International Labor Affairs, from Podgursky and Swain, op. cit.

[25] Barry Bluestone and Bennet Harrison, *The Deindustrialization of America* (New York: Basic Books, 1982), p. 58.

[26] U.S. Congress, Congressional Budget Office, *Work and Retirement: Options for Continued Employment of Older Workers* (Washington, DC: CBO, 1982); and U.S. Department of Labor, Labor-Management Services Administration, *What You Should Know About the Pension and Welfare Law* (Washington, DC: U.S. Department of Labor, 1978).

[27] Herbert S. Parnes, et al., *Retirement Among American Men*, report to the U.S. Department of Labor, Employment and Training Administration (Columbus, OH: Ohio State University, Center for Human Resource Research, 1984).

The leaving of friends, family, and community are serious social and psychological costs of moving for many workers. The financial costs can be substantial as well—e.g., selling a house at a loss in a depressed area, finding affordable housing in a more prosperous but more expensive area, and, increasingly in recent years, giving up a spouse's job in a two-income family. Social research on why families move suggests that most people prefer to stay where they are. If they move, it is usually because they are pushed out by unfavorable economic conditions, not because they are lured out by the promise of better jobs elsewhere.[29]

Of the displaced workers surveyed in 1984, 13.5 percent reported that they had moved to a different city or county to look for work or take a different job.[30] Nearly one-quarter of those surveyed were managerial, professional, or sales workers—groups which are ordinarily more inclined to relocate than service or blue-collar workers. Under special circumstances, such as a guaranteed job with the same company at the other end, the number of blue-collar workers deciding to relocate may rise substantially, to 20 percent or more (see chapter 6).

Mental and Physical Stress

The economic stresses of displacement take a toll in mental and physical health. A family with its savings wiped out after a long spell of unemployment and with no earnings coming in is extremely vulnerable to stress-related illness. Typical of prolonged unemployment are increases in anxiety, depression, physical ailments, alcoholism, and family strife.

One of the Cleveland steelworkers dismissed when U.S. Steel closed plants in 1984 was acutely aware of the emotional strains ahead. As soon as he got news of the plant closing, he said, "I sat down with my wife and told her I'm going to apologize in advance for the next year. In a year I could be like too many of my laid-off friends, single and going to AA meetings every night."[31]

Cobb and Kasl found physical evidence of stress in medical examinations of 100 blue-collar workers displaced in two plant closings in the 1960s.[32] The displaced workers, compared with 74 controls, had an increased incidence of ulcers, hypertension, and arthritis. Other findings were increased levels of cholesterol, blood sugar, and uric acid, suggesting increased risks of heart disease, diabetes, and gout. Two workers in the group committed suicide, and two others tried or threatened it. The authors observed that the suicide rate was 30 times the national norm for blue-collar workers, although the study numbers were too small to be statistically significant. In followup studies, Cobb and Kasl found that many of the stress-related symptoms they observed disappeared rather quickly. Most of the workers found new jobs, similar in pay and status to their old jobs, without long delays; the average duration of unemployment was 15 weeks. The plant closings in this study occurred during the prosperous 1960s when unemployment rates were low.

Brenner found a statistical relationship between employment rates and various indicators of health and well-being. He reported that the 14.3-percent rise in unemployment between 1973 and 1974 was associated with 45,936 additional deaths, including 28,510 excess deaths from heart and vascular disease, 403 homicides, 270 suicides, and 8,416 additional mental hospital admissions.[33]

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[28] Marc Bendick, "Worker Mobility in Response to a Plant Closure," *Managing Plant Closings and Occupational Readjustment: An Employer's Guidebook*, Richard P. Swigart (ed.) (Washington, DC: National Center on Occupational Readjustment, Inc., 1984), p. 40.

[29] Bluestone and Harrison, op. cit., pp. 102-104.

[30] Flaim and Sehgal, op. cit., p. 11.

[31] Margaret Engel, "Plant's Closing Exacts a Toll on Workers' Spirits," *The Washington Post*, Jan. 3, 1984; see also Earl Bohn, "Steel-Plant Closing Stuns Johnstown, PA," *The Washington Post*, Jan. 3, 1984.

[32] Sidney Cobb and Stanislas V. Kasl, "Some Medical Aspects of Unemployment," report prepared for the U.S. Department of Health, Education, and Welfare, National Institute for Occupational Safety and Health, 1977; Jeanne Prial Gordus and Sean P. McAlinden, *Economic Change, Physical Illness, Mental Illness, and Social Deviance*, study prepared for U.S. Congress, Joint Economic Committee, Subcommittee on Economic Goals and Intergovernmental Policy, 98th Cong., 2d sess. (Washington, DC: U.S. Government Printing Office, 1984).

The emotional costs of plant closings, though difficult to quantify, are among the more distressing burdens borne by displaced workers. Some feel real bereavement. Not only is their livelihood gone, but the social center of their lives has vanished. When the Packard plant closed, half the displaced workers had been with the company for a quarter century or more. A 48-year-old machine operator who had started at the plant when he was 19 said: "I could have cried. It's like losing your home."[34]

Thirty years later, textile workers in North Carolina felt the same way. When the Old Fort Finishing Company shut down in 1984, a 51-year-old veteran, who had worked in the plant since high school, said: "It hit us all like a lightning bolt, or a death in the family."[35]

Wilcock and Franke, in their five-city study of plant closings, suggested that the psychological costs may be harder to bear even than economic hardship.

> Perhaps the most serious impact of shutdowns, particularly for the long-term unemployed, was a loss of confidence and a feeling of uneasiness . . . The unemployed worker loses his daily association with fellow workers. This loss means not only disappearance of human relationships built up over a period of years but also the end of a meaningful institutional relationship.[36]

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[33] M. Harvey Brenner, *Estimating the Effects of Economic Change on National Health and Social Well-Being*, study prepared for the U.S. Congress, Joint Economic Committee, Subcommittee on Economic Goals and Intergovernmental Policy, 98th Cong., 2d sess. (Washington, DC: U.S. Government Printing Office, 1984), p. 3.

[34] Aiken, et al., op. cit., p. 23.

[35] Bill Petersen, "Death of a Textile Plant," *The Washington Post*, Jan. 31, 1985.

[36] Wilcock and Franke, op. cit., pp. 166, 185.

THE WORKERS MOST AFFECTED

The workers hardest hit by displacement are older workers, the less educated, the less skilled, minorities and, in many cases, women. In almost every survey and case study over the past 25 years, a very strong finding is the link between prolonged unemployment and age.[37]

Older Workers

When the Mack truck plant in Plainfield, New Jersey, closed in 1961, laying off nearly 3,000 production workers, age was found to be the most important factor in duration of unemployment.[38] A study of workers displaced by the 1964 shutdown of the Studebaker auto plant in South Bend, Indiana, showed the same effect; age was more strongly linked with unemployment than race, education, skill, or any other factor examined.[39]

The Wilcock and Franke five-city study found that in each city the long-term unemployment rate (1 year or more out of work) was twice as high for workers 55 and over as for workers under 35.[40] The study of ex-Packard workers found that those over 60 averaged 15 months without work, compared to 7 months for those under 50.[41] In a typical comment, one of the Packard workers said: "I went to fifteen places for work. All they want is a young man. My record at Packard didn't mean a thing."[42]

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[37] Jeanne P. Gordus, Paul Jarley, and Louis A. Ferman, *Plant Closings and Economic Dislocation* (Kalamazoo, MI: The Upjohn Institute for Employment Research, 1981), p. 81.

[38] Dorsey, op. cit., pp. 196-197.

[39] J. John Palen and Frank J. Fahey, "Unemployment and Reemployment Success: An Analysis of the Studebaker Shutdown," *Industrial and Labor Relations Review*, January 1968.

[40] Wilcock and Franke, op. cit., p. 55.

[41] Aiken, et al., op. cit., p. 31. These figures apply to white workers; minority workers were analyzed separately.

[42] Ibid., p. 33.

Several studies have documented the greater difficulties less educated workers face in finding new jobs after displacement.[43] This handicap is often linked with age. Older Americans, by and large, have fewer years of schooling than younger ones.

Although age discrimination in hiring is now against the law, the pattern persists. The BLS survey of displaced workers in 1984 showed higher unemployment rates for workers aged 55 to 64 than for younger groups, with especially high rates for older men (see table 3-1). A recent BLS study affirmed the finding. Analyzing unemployment data from 1968 to 1981, Rones concluded that older people in general do not have high unemployment rates, but once they are unemployed they "are far less likely to find a job than are their younger counterparts."[44] He found that the duration of unemployment rises with age, and that this link is most pronounced for older workers who persist in looking for a job until they find one, rather than dropping out of the labor market.

A senior BLS official recently gave several examples of older well-qualified workers who could not find work, even in fields where demand is strong, for example, technical writing in the aircraft industry. Said the official: "If you're a male over 55 looking for a job, you're competing with 16 to 19 year olds" for entry level jobs such as retail sales clerk or janitor. "Age is a terrible disease in the American job market," he said.[45]

Some directors of retraining and reemployment programs report a different experience. One said, "We have good luck placing older workers, because they read and add better than younger workers, and they know the line employers want to hear." Nonetheless, even though some employers may value older workers for their reliability and stability, others consider them harder to train for new tasks, and perhaps less productive. An older worker may also be perceived as a poor investment for training, or too costly in health insurance and pension benefits.[46] Well-run displaced worker programs may indeed help older workers overcome the age barrier; but the nationwide survey results and unemployment figures consistently support the conclusion that the barrier exists.

For middle-aged as well as older workers, the very strengths of maturity, steadiness, and long tenure with one employer may become weaknesses in the search for a job after displacement. Workers with more seniority are likely to be the last laid off in a declining industry, and therefore may find themselves in a poor job market after others have had a head start. Many mature displaced workers have held only one job in their lives and have no idea how to look for a job effectively.

Mature workers usually find it much harder to move away from a distressed area than do younger workers. Many are strongly rooted by family and community ties; if they own a home, it may be unsalable; and they are perhaps less adventurous than younger people about moving to an unfamiliar town with no assurance of a job or a place to live. To many mature and older displaced workers, the financial and psychological costs of moving away are simply too high.[47]

Less Skilled Workers

In general, the less skilled a worker, the harder it is to find a new job after displacement. The BLS survey found that the occupational group with the worst reemployment experience was the unskilled handlers, equipment cleaners, helpers, and laborers (see table 3-2). Only 42 percent of these displaced workers were employed in January 1984, while 47 percent remained unemployed; this compares with 60 percent employment and 26 percent unemployment for the entire group of 5.1 million adult workers displaced from their jobs in the 5 years up to 1984.

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[43] Ibid., p. 87.

[44] Philip L. Rones, "The Labor Market Problems of Older Workers," *Monthly Labor Review*, May 1983, p. 10.

[45] Ronald Kutscher, Assistant Commissioner, U.S. Bureau of Labor Statistics, interview, November 1983.

[46] Gordus, et al., op. cit., p. 84.

[47] Marc Bendick, Jr., and Judith Radlinski Devine, "Workers Dislocated by Economic Change: Do They Need Federal Employment and Training Assistance?" Appendix B in National Commission for Employment Policy, Seventh Annual Report: *The Federal Interest in Employment and Training* (Washington, DC: National Commission for Employment Policy, 1981), p. 204; and Hansen and Bentley, op. cit., p. 150.

According to some case studies, semiskilled workers have special difficulties in finding new jobs. Years of experience in one job may give a worker well-honed skills that are not transferable; this seems especially true of semiskilled operatives in manufacturing industries. For example, Dorsey's study of the dislocated Mack truck workers discovered that skilled workers had no trouble finding jobs; in a sample taken 10 months after the plant closed, all the skilled workers were reemployed, compared with a 70-percent reemployment rate for all the ex-Mack workers.[48] Unskilled workers were next most successful in finding new jobs. The semiskilled, the largest group laid off, were least successful. Their speed and efficiency in running their own particular machines in the Mack plant were not versatile enough skills to be valuable in new jobs; if they found work it was at pay substantially less than their previous wages.

Minorities

As table 3-1 showed, minority workers are at a disadvantage in finding new jobs after displacement. Forty-one percent of black displaced workers were unemployed in January 1984. Hispanic workers, somewhat better off at an unemployment rate of 34 percent, were also more likely to be jobless than white displaced workers (23 percent unemployed).

Case studies of the past show there has been little change in the pattern. Nineteen months after the Packard company closed down in 1956, almost 40 percent of its displaced black workers were unemployed, compared with one-quarter of the white workers.[49] Wilcock and Franke found in their five-city study (1959-60) that unemployment was especially severe among blacks, even though they were younger and about as well educated as whites; that when the black workers found new jobs they took bigger pay cuts than whites; and that after retraining they were less likely than whites to find jobs using the skills they had learned.[50] The discrepancies were large. For example, in East St. Louis 85 percent of blacks were unemployed for 6 months or more, compared with 61 percent of whites.

Women Workers

One-third of the adult workers displaced from their jobs between 1979 and 1984 were women. In some situations, the effects of displacement are harsher for women than for men. In others, their experiences may simply be different.

The BLS survey found that the unemployment rate for women workers was somewhat below that for men, but the reemployment rate for women was markedly lower (table 3-1). The difference lay in the fact that many more women—24 percent for women v. 9 percent for men —were out of the labor force at the time of the survey. How many of these women stopped looking for work by choice or retirement, and how many out of discouragement, was not revealed by the survey. The period of time without a job was also longer for women than for men, 26 v. 22 weeks (table 3-5); again, it is not clear whether some women were out of the labor force by choice during at least part of that time.

Case studies shed further light on women workers' experience of displacement. The older studies, dating from the 1960s, showed women at a great disadvantage in rates and duration of unemployment and in wage losses on getting new jobs.[51] In some cases, unemployment rates among women were almost three times the rates for men.[52] In plant closings where both men and women were laid off, and both had made about the same wages before layoff, reemployment wages were typically one-third lower for the women than for men.[53]

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[48] Dorsey, op. cit., p. 201.

[49] Aiken, et al., op. cit., p. 133.

[50] Wilcock and Franke, op. cit., pp. 53-54.

[51] Gordus, et al., op. cit., pp. 89-90.

[52] Herbert Hammerman, "Five Case Studies of Displaced Workers," *Monthly Labor Review*, June 1964, pp. 663-690.

[53] Wilcock and Franke, op. cit., pp. 144-145.

Recent experience is somewhat more mixed. A study of men and women workers who lost their jobs when a Pennsylvania thermostat control factory closed in 1981 found a continued disadvantage for women.[54] Both men and women had very high unemployment rates and great earnings losses, but the women were in worse straits. Fifteen months after the plant closed, 42 percent of the men were out of work, and 59 percent of the women. The reemployed men were making only 40 percent, and the women 30 percent, of their former earnings, which had been at the relatively low wage of $6 per hour. Formerly full-time workers, many of them worked only sporadically or part time after displacement, which accounts in part for their very low earnings.

Rosen's study of New England blue-collar women displaced in 1979 showed rather different results. Five to nine months after they were laid off from their factory jobs (mainly in the apparel and electrical goods industries), 59 percent of the women were back at work, 24 percent were unemployed, 2 percent were "discouraged" and had given up looking for work, and 13 percent were out of the labor force.[55] Wage reductions for the reemployed workers were minor, about 2 percent. This small loss compares favorably with the earnings losses of male factory workers reported in other case studies.

Behind this comparison, however, lie some revealing figures. While their wage losses on the new jobs were slight, these women did not have a great deal to lose; their wages before layoff averaged $4.36 per hour, while the average U.S. manufacturing wage in 1979 was $6.70 per hour. The higher a woman's wages before layoff, the greater was her wage loss. This study also indicated that repeated layoffs erode earning power; the best predictor of low wages for the women job losers was the number of layoffs they had experienced in the past 10 years.

Despite their low wages, the women Rosen studied were earning more than pin money. Over 40 percent were the primary earners in their families, and of these, two-thirds were unmarried heads of households. Even the married women whose husbands had full-time jobs contributed, on average, more than one-third of their family incomes.

For the whole group, incomes dropped an average of 20 percent the year of the job loss, mainly because of the lost time at work; this was a net loss, taking into account unemployment insurance and transfer payments such as TAA benefits. One-third of those who were single heads of families dropped below the poverty line during the year they lost their jobs.

The "Handicap of Affluence"

Displacement is a leveling experience. The workers who lose the most are generally those who held the best jobs, with good pay, generous benefits, and job security in strongly unionized industries.[56] To "affluent" displaced workers, such as former steel and auto workers, the wages in available new jobs may look far less than adequate to meet their obligations.

A reemployment center in the Buffalo area, for example, was able to help 523 of 798 people enrolled in the program find jobs between September 1982 and September 1983; about half those enrolled were displaced steelworkers.[57] The center's 66-percent placement rate was more than respectable in this hard-hit steel, auto, and chemicals manufacturing region, where unemployment reached 15.2 percent in November 1982. However, the workers who got new jobs had to take very substantial pay cuts, dropping on average from $10.00 per hour to $6.62 per hour, or 34 percent below the previous average wage for these workers and 24 percent below the national average manufacturing wage, then $8.73 per hour.

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[54] Kay A. Snyder and Thomas C. Nowak, "Sex Differences in the Impact of a Plant Shutdown: The Case of Robertshaw Controls," *Sociology Toward the Year 2000: The Social Galaxy*, Charles Babbitt (ed.) (Harrisburg, PA: Pennsylvania Sociological Society, 1983), pp. 228-239.

[55] Rosen, op. cit., p. 93; see also Ellen I. Rosen, "Men and Women: The Dilemmas of Unemployment," report prepared for the U.S. Department of Labor, Employment and Training Administration (Boston, MA: Boston University and Nichols College, Center for Applied Social Science, n.d.).

[56] Jacobson's studies of displacement in several manufacturing industries, based on 1 percent of Social Security records, confirm this observation. See Jacobson, op. cit.; and Jacobson and Thomason, op. cit.

[57] L.M. Wright, Jr., "Case Study: Buffalo Worker Reemployment Center," report prepared for the U.S. Department of Labor, Employment and Training Administration (Princeton, NJ: Mathematica Policy Research, Inc., 1985), p. 50.

In other places, in better economic times, the decline in wages has been less severe. For instance, the Downriver Community Conference, a reemployment center near Detroit, placed 72 percent of 700 participating workers (displaced from the auto supply industry) between July 1980 and September 1981.[58] On average, these workers took a pay cut of about $1 per hour, dropping from a wage of $9.29 per hour before layoff to $8.20 on the new job. (In real terms the drop was greater, since the inflation rate was then about 12 percent.) The experience of comparable workers displaced from similar plants indicated that, without the assistance of the Downriver program, reemployment wages would have ranged from $5.50 to $6.50 per hour. The average manufacturing wage at the time was $7.50.

Some displaced workers hold out for a long time, getting by on savings, unemployment insurance, and earnings of other family members, before they settle for a job that means a steep drop in earnings. For workers who have been through layoffs in the past and then have been recalled, hope that the plant will reopen dies hard. This resistance to taking a lesser job has been termed a "handicap of affluence" and an impediment to reemployment. "The more attractive the previous job, the more tempted a dislocated worker is to remain unemployed waiting for even a remote chance to return to that job."[59]

The question may arise whether a sharp drop in the earnings of a formerly well-paid worker, unfortunate as that may be for the individual involved, should rightly be considered a problem for public policy. Framed this way, however, the question misses the point that it is unjust and unwise to expect displaced workers to bear the whole burden of displacement. For a mature, experienced worker to have to start over at the bottom of the economic ladder is definitely a heavy burden. This does not imply that displaced workers have a lifetime right to the wages they were earning before displacement, or that society must offer such a guarantee. The point is rather that many displaced workers need assistance in searching for, or retraining for, a new job with reasonable pay and prospects for security or advancement. It is in society's interest as much as the individual's to make sure that assistance is forthcoming. Failure to do so invites resistance to the technological advance and other changes that keep U.S. industry productive and competitive.

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[58] D. Alton Smith, Jane Kulik, with Ernst W. Stromsdorfer, *The Downriver Community Conference Economic Readjustment Activity Program: Impact Findings From the First Phase of Operations*, report prepared for the U.S. Department of Labor, Employment and Training Administration (Cambridge, MA: Abt Associates, Inc., 1983), pp. 1-8.

[59] Bendick and Devine, op. cit., p. 204; see also Linda LeGrande, U.S. Congress, Congressional Research Service, "Dislocated Workers: An Analysis," 1983, p. 22.

SOCIAL COSTS OF DISPLACEMENT

Whole communities, or whole regions, can be badly hurt by the loss of an important plant or the decline of an industry. Many old New England mill towns had not recovered a generation after losing textile plants to the South in the 1940s and 1950s. The Appalachian coal region, never prosperous, was crushed economically by the loss of 300,000 coal mining jobs from 1948 to 1968.

Plant closings and massive layoffs have ripple effects. The first wave hits the displaced workers themselves; the second wave, suppliers for the plant that closed down and shops that the workers patronized; the third wave, the community, which once collected taxes from the plant, the workers, and the suppliers and shops they kept in business.[60] Often these communities are pressed to provide extra social services and welfare from a shrunken tax base.

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[60] Suppliers and their employees may in some cases suffer displacement effects before the primary industry. Companies under competitive pressure may try to cut costs by buying parts and subassemblies overseas or perhaps from new domestic suppliers in low-wage areas.

If the local economy is expanding, the ripple effects of layoffs may dissipate quickly. Indeed, research on business closures indicates that the most prosperous parts of the country have the highest rates of closings—and of employment loss—but also have the highest rates of employment gains, which more than compensate for the job losses.[61] It is in areas of economic stagnation or decline that plant closings and mass layoffs can deliver a crippling blow to communities.

Systematic studies of the effects of plant closings and mass layoffs on communities are not available, but useful information can be found in a handful of individual case studies. Community effects are perhaps most clearly evident in an isolated company town. Consider, for example, the case of Anaconda, Montana.[62] For 75 years, the economic base of this town of 12,000 people was the Anaconda Copper and Mining Company's smelter. It directly employed 1,500 people, 1,000 from Anaconda and 500 from neighboring Great Falls. In 1980, Atlantic Richfield, which had purchased Anaconda Copper and Mining a few years earlier, closed down the smelter. Ultimately, the loss of the smelter and the ripple effects from its closing meant the loss of $42 million in annual payroll in a county where the payroll from all sources was only $51 million.

In the immediate aftermath, local businesses were as much affected as the smelter workers. The town's Chevrolet dealer told a *Los Angeles Times* reporter: "The businessmen are getting the brunt of it right now. They gave [the smelter workers] $3,500 in severance pay—I got caught with $500,000 in cars." Thirty-six businesses in the town laid off 20 percent of their employees, and one-fourth anticipated further layoffs. Some owners, who had expected their businesses to give them a comfortable retirement, went bankrupt. As for the smelter workers, a few took early retirement. Some left town, selling their houses for little more than half the purchase price.

Emotional trauma was roughly indicated by a few statistics. Visits to the Alcohol Service Center increased 52 percent, the number of people seeking drug counseling increased 50 percent, and admissions to the Mental Health Center rose 62 percent.

Ripple effects can be very extensive when industries that are central to a region's economy undergo decline. The fortunes of the auto industry, for instance, affect a wide network of other industries. The U.S. Department of Labor estimates that for every 100 jobs lost in the motor vehicle industry, another 105 jobs are lost in the direct supplier network, which includes steel, ferrous castings, aluminum, synthetic rubber, glass, plastics, and textiles. Bluestone and Harrison estimate that still another 95 jobs may be lost in more remote industries (e.g., iron ore mining) and in transportation, warehousing, and wholesale and retail trade. Altogether, then, if 1,000 auto workers are laid off permanently, as many as another 2,000 jobs might be lost.[63]

Such estimates must be taken with caution, however. The multipliers used for estimating ripple effects (positive or negative) of business expansions and contractions are derived from input-output models. The models, though highly complex, still tend to simplify the real world. Their quantitative projections may be quite off the mark in specific cases. For example, when the Lykes Corporation shut down the Campbell Works plant of Youngstown Sheet and Tube in September 1977, various studies by local and State agencies projected that job losses in the Youngstown area would eventually affect 4,000 to 14,000 additional workers.[64] Many people feared that the Campbell Works closing would deal a mortal blow to the community.

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[61] Candee Harris, "The Magnitude of Job Loss From Plant Closings and the Generation of Replacement Jobs: Some Recent Evidence," *The Annals of the American Academy of Political and Social Science*, vol. 475, September 1984.

[62] Bill Curry, "Smelter Closing Gives Cash Registers a Hollow Ring," *Los Angeles Times*, Jan. 11, 1981; see also Curry, "Town Loses Its Payroll But Finds a Will to Survive," *Los Angeles Times*, Apr. 5, 1981, both cited in Bluestone and Harrison, *The Deindustrialization of America*, op. cit., pp. 70-71.

[63] Bluestone and Harrison, op. cit., p. 74. These calculations were made for jobs lost because of lowered production. The ratio might be different for jobs lost because of increased productivity.

What actually happened was that employment in the Youngstown area declined only slightly in the year after the closing. The national economy was booming, with a 4.1 percent increase for the year in nonagricultural jobs; the State of Ohio enjoyed a modest share in the boom, with a 2.1-percent expansion in jobs; and the decrease of jobs in Youngstown was small (1.4 percent). In this prosperous year, the local General Motors plant raised production, making up some of the loss in manufacturing jobs for the plant closing, and employment in retail trade rose. Two more local factors also helped to expand retail jobs: the laid-off steelworkers got liberal TAA benefits, and Youngstown grew as a retail center for neighboring counties in Ohio and Pennsylvania.

Nonetheless, the apprehension that the Campbell works closing would hurt Youngstown was not mistaken. Buss and Redburn, studying the area 2 years afterwards, concluded that if the plant had not shut down, Youngstown would have shared fully in the national prosperity rather than struggling to stay even. They estimated that nonagricultural employment would have risen 2.5 to 4 percent instead of declining 1.4 percent. Moreover, the local economy suffered a loss in purchasing power; the retail jobs that supplanted manufacturing jobs in 1977 and 1978 paid less than $5 per hour on the average, compared to the typical manufacturing wage of $10 per hour.[65] The town of Campbell, where the plant was located, experienced a drastic shrinkage of its tax base. Even though property taxes were raised, the town still had to borrow $750,000 from the State to keep the schoolrooms open.[66]

In January 1980, Youngstown's weakened economy received another shock when U.S. Steel closed its Youngstown works, laying off 13,000 workers. Five and one-half years later, Youngstown had not recovered. In July 1985, the national unemployment rate (civilian, not seasonally adjusted) was 7.3 percent; for Ohio, it was 9.3 percent; and for the Youngstown metropolitan area, 11.3 percent.

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[64] Terry F. Buss and F. Stevens Redburn, *Shutdown at Youngstown: Public Policy for Mass Unemployment* (Albany, NY: State University of New York Press, 1983).

[65] Ibid.

[66] Ohio AFL-CIO, "Plant Closings in Campbell Force Higher Taxes," *News and Views*, Feb. 29, 1980, cited in Bluestone and Harrison, op. cit., pp. 73-74.

REGIONAL AND OCCUPATIONAL MISMATCHES

The Youngstown experience, indeed the economic state of much of the Northeast-Midwest frostbelt, highlights the importance of local and regional effects in the displacement of workers. While aggregate U.S. employment in the manufacturing industries was roughly unchanged from 1973 to 1980 (at slightly over 20 million workers),[67] manufacturing jobs dropped 10 to 17 percent in New York, Ohio, and Michigan. New York and Ohio each lost over 150,000 manufacturing jobs; Michigan lost more than 200,000. While some workers relocated to Texas, California, and other growing areas, most did not. The consequence of the regional shifts in manufacturing jobs was persistent double-digit unemployment in much of the industrial Northeast.

Nationwide data on plant closings are limited and unsatisfactory (see box 3-A), but the best available information shows a similar but more complex regional picture. It appears that regions winning jobs between 1976 and 1982 had higher rates of job loss from dissolution of businesses than regions where unemployment rose, but the winning regions more than compensated with exceptionally high rates of job generation. The converse was also true. As table 3-8 shows, the Middle Atlantic and East

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[67] U.S. manufacturing employment dropped from 21.0 million in 1979 to 19.4 million in August 1985.

Box 3-A.—Information on Plant Closings

Considering the attention that plant closings attract, solid information on the subject is surprisingly limited. Nationwide data on plant closings have never been compiled systematically.[1] Available estimates, both of the number of plants closed each year and of the number of workers thus displaced, cannot be used with confidence. Some estimates, based on incomplete, anecdotal accounts, are almost certainly too low; others, based on data compiled for other purposes, may err in either direction.

Better statistics about plant closings and mass layoffs should become available in a year or so. The Job Training Partnership Act of 1982 requires the Secretary of Labor to monitor and report annually on plant closings. However, no data were collected until Congress appropriated money specifically for the purpose, $1 million in fiscal year 1984 and another $5 million in fiscal year 1985. An eight-State pilot program was begun in 1984, but the Administration proposed to rescind the 1985 appropriation, on the grounds that a plant closing study was unnecessary in a period of economic recovery. Congress did not act on the rescission. Work is now underway to collect data from all 50 States on plant closings and layoffs affecting more than 50 workers; publication is expected in 1986. The U.S. General Accounting Office (GAO) is also conducting a major study of plant closings, to be finished in 1986.

Meanwhile, analysts have resorted to several less complete sources of information to examine plant closing trends.[2] A few States (e.g., California, Washington, and Massachusetts) have collected information about plant closings within their own borders. Also, some information is available from industry trade associations. The American Iron and Steel Institute, for example, has kept track of closings and partial closings of steel facilities over the last 10 years. The data show that steel producers in the United States closed over 400 facilities between 1974 and 1984, including about 20 entire plants or integrated companies. About a dozen plants or companies were afterwards reopened under different management.

Nationwide estimates do exist, and are generally made in one of two ways:

1. by adding up the number of plant closings reported in the general and trade press; or
2. by developing proxies for plant closings, based on business or employment data collected for other purposes.

Both methods have serious drawbacks.

Estimates based on press accounts are only as complete as their sources. Underestimation is almost inevitable. The largest data bank of press accounts for monitoring plant closings nationwide includes only about 200 publications; and most of the press, whether trade or general, identify only the large or highly publicized plant closings. Surveys of this sort may be used for tracking year-to-year trends, but are not really adequate even for this purpose. Press attention to the subject is likely to be greater in times of intense public concern about plant closings (e.g., during a recession) than during prosperous times.

One well-known survey based on press clippings was done by a private company, the Bureau of National Affairs, in 1982 and 1983.[3] Their 1982 survey, based on 125 trade publications, reported 619 permanent or indefinite plant closings, involving the displacement of 215,525 workers (an average of 348 workers per plant). The 1983 survey reported 547 plant closings, with 107,158 workers displaced (a plant average of 196 workers). The large number of workers per plant closing indicates that the survey counted mostly large-scale closings—especially considering that many companies phase down over a long time before officially and permanently closing, so that the figures cited for average number of workers displaced are most likely too low.

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[1] The data collected by the Bureau of the Census and analyzed by the Bureau of Labor Statistics on displacement of workers from January 1979 to January 1984 was based on interviews with members of 60,000 households, not on a count of plant closings.

[2] For a concise discussion of these sources, see William Schweke and Meriwether Jones, "Economic Adjustment Resources" (Washington, DC: Corporation for Enterprise Development, 1982).

[3] Bureau of National Affairs, *BNA's Employee Relations Weekly*, vol. 2, No. 10, Mar. 12, 1984, pp. 307-310.

Nationwide estimates of plant closings and displaced workers derived from proxy data are much higher than those based on press accounts. Several analysts have based plant-closing estimates on Dun & Bradstreet's market indicator files, which are kept current for over 5 million business establishments (defined as the specific locations where business activities take place). By following changes in the files from year to year, researchers can track the number of business establishments that have opened, closed, or relocated (assuming the establishment keeps its same name and file number); changes in the number of employees at each establishment can also be followed.

The Dun & Bradstreet data are not compiled for the purpose of counting plant closings, and present problems when used for that purpose. For example, multi-establishment firms do not always list all their branches or subsidiaries. If one of these shuts down, the event is not recorded as a plant closing. On the other hand, a merger, acquisition or divestiture of a particular establishment could be recorded as a plant closing, when all that actually happened was a change in plant management. One objective of the GAO study of plant closings is to check the accuracy of the Dun & Bradstreet data as a proxy for a direct count.

Following Dun & Bradstreet data from 1976 to 1982, a recent study sponsored by the U.S. Small Business Administration concluded that 24.8 million jobs were lost during the period in business dissolutions.[4] Some 16.2 million jobs were lost due to "plant closings," defined as dissolutions of establishments in firms with 100 or more employees. The remainder, 8.6 million jobs lost in dissolutions of smaller firms or branches of firms, was considered "turnover." These figures reflect only jobs lost, not jobs created during the same time. According to the same study, job creation exceeded job losses throughout the period, though just barely in the 2 years from 1980 to 1982.

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[4] Candee Harris, "The Magnitude of Job Loss From Plant Closings and the Generation of Replacement Jobs: Some Recent Evidence," *The Annals of the American Academy of Political and Social Science*, vol. 475, September 1984.

Table 3-8.—Employment Loss in Closings and Job Replacement Rates: All Industries by Region, 1976-82

Region	Employment loss in closings[a]		
	Number (in thousands)	Percent[b]	Replacement rates[c]
New England	872	28.8	1.49
Middle Atlantic	2,696	29.6	1.17
East North Central	3,077	29.7	1.23
West North Central	958	29.2	1.68
South Atlantic	2,639	35.9	1.51
East South Central	947	34.0	1.29
West South Central	1,808	38.0	1.93
Mountain	688	40.2	2.15
Pacific	2,512	41.2	1.70
U.S. total	16,177	33.4	1.50

[a] Closings in firms with 100 or more employees.
[b] Employment loss as a percentage of 1976 employment.
[c] The replacement rate measures the number of jobs created for each job lost in closings.

SOURCE: Candee Harris, "The Magnitude of Job Loss From Plant Closings and the Generation of Replacement Jobs: Some Recent Evidence," The Annals of the American Academy of Political and Social Science, vol. 475, September 1984.

North Central regions lost jobs due to plant closings at rates lower than the national average, but their job replacement rates were even lower. The East South Central region, where the job loss rate was a little above average, also had a poor record in job creation. All three of these regions had large numbers of displaced workers in 1984.

Another source of mismatch between jobless workers and jobs is the shift of manufacturing jobs from the older smokestack industries into faster growing high-technology industries where wages for production (blue-collar) workers are usually lower than the average manufacturing wage.[68] Many of the jobs that are most visibly declining—e.g., in steelmaking—pay considerably more than the average manufacturing wage. There are other differences besides the wage gap. Not surprisingly, the proportion of women and nonunionized workers is greater in production jobs in the newer, faster growing high-technology industries. Altogether, the new jobs being created in manufacturing often do not fit very well with those that are disappearing.

Table 3-9 compares wages for production workers in five manufacturing industries in which overall employment grew 24 percent between 1979 and 1984 with wages in five industries where employment shrank 24 percent during the same time, and is projected to decline further by 1995. In the fast growth industries, wages in July 1985 averaged $8.19 to $10.06 per hour; in the slower growth or declining industries, $10.90 to $13.82 per hour. The average manufacturing wage at that time was $9.52 per hour.

High-technology manufacturing industries probably will create no more than a minor share of the new jobs in the U.S. economy in the next 10 or 20 years. The greatest growth will almost certainly come, as it has for the last 40 years, in the service-producing sector of our economy, which now accounts for 72 percent of all U.S. jobs. The shift to the service sector has recently accelerated. From 1960 to 1979, the United States gained some 6 million jobs in the goods-producing sector, of which 4.2 million were in manufacturing; in the same period 29.6 million jobs were added in the service-producing sector.[69] From 1979 to mid-1985, the Nation lost 1.6 million jobs in manufacturing, while adding 9.6 million in the service industries. Considering that half the 5.1 million workers displaced from their jobs since 1979 were in manufacturing, the extent of the mismatch between the old jobs and the new jobs is evident.

Service sector jobs are not always inferior jobs.[70] Many low-paying service jobs have re-

Table 3-9.—Average Hourly Earnings of Production Workers in Selected Manufacturing Industries, July 1985[a]

Slow growth industries 1979-95	Average hourly earnings	Fast growth industries 1979-95	Average hourly earnings
Blast furnaces and basic steel products . .	$13.51	Office and computing machines	$9.52
Primary nonferrous metals	13.82	Electronic components and accessories . .	8.28
Nonferrous rolling and drawing	11.10	Engineering and scientific instruments . . .	10.06
Motor vehicles and equipment	13.37	Measuring and controlling devices	8.93
Farm machinery and equipment	10.90	Medical instruments and supplies	8.19

[a] Benefits are not included in earnings figures.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*, September 1985, table C-2.

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[68] The high-technology sector is defined in various ways. Depending on the definition, employment in the sector varied from 2.5 to 12.6 million in 1980, and increased by 20 to 40 percent from 1972 to 1982. See ch. 4 for further discussion.

[69] *Employment and Earnings*, September 1985, table B-1. The jobs are those of employees on nonagricultural payrolls.

[70] The broadest definition of service sector includes everything but the goods-producing industries (agriculture, mining, construction, and manufacturing). It encompasses transportation, communication, public utilities, wholesale and retail trade, finance, insurance, real estate, other personal and business services, and government. Analyses of jobs in the service sector are usually based on data that classify jobs by industry. Another way of looking at jobs is by occupational category; e.g., "clerical worker," which is essentially the same job in a bank as in an auto assembly plant. The occupational category "service worker" must be distinguished from "workers in the service industries." The occupational category refers to workers such as janitors, cooks, waiters, hotel maids, food service workers, and health service workers. Most of these workers are employed in the service sector, but some are in other sectors such as manufacturing.

placed still lower paying agricultural and laborer jobs. Also, not all manufacturing jobs are good jobs. For example, the average wage for production workers in apparel in mid-1985 was $5.69 per hour, compared with $9.52 for all manufacturing and $8.54 for the entire private sector. Moreover, the service sector is broad enough to include occupations from corporation lawyer to restaurant dishwasher. Some parts of the service sector—e.g., transportation and public utilities—pay above-average wages to nonsupervisory workers ($11.38 per hour in 1985). The categories with most employees, however, pay below-average wages (e.g., $5.92 per hour in retail trade and $7.86 per hour in the catchall "services" category). Overall, service sector wages—$7.73 per hour in 1985 for nonsupervisory workers—are substantially lower than the $9.52 average wage for production workers in manufacturing.[71]

According to the Bureau of Labor Statistics, the 10 occupations expected to produce the most new jobs by 1995 are quite traditional ones, all in the service sector, that already account for millions of jobs in our economy.[72] For at least 5 of the top 10, pay and prestige are low: janitors and cleaners, cashiers, waiters and waitresses, nursing aides and orderlies, and retail salespersons.. Another 2 of the 10—registered nurses and kindergarten and elementary teachers—are jobs held principally by women where mediocre pay often does not match the demanding responsibilities. The other 3 in the top 10—truck drivers, wholesale trade salesworkers, and accountants and auditors—are relatively well-paid jobs often held by men. Only one of these three (truck drivers) is a blue-collar job.[73]

IS THERE A MISSING MIDDLE?

The changing character of jobs in the U.S. economy is one element of the argument, made by some analysts, that the American middle class is eroding.[74] Displacement of well-paid blue-collar workers from the older, unionized smokestack industries, and replacement of those jobs by jobs paying considerably less, are seen as causes of the "declining middle." Other analysts see no evidence of any such long-term trend, and believe that if earnings or family incomes did show a tendency to polarize during the last 10 or 15 years (a point on which there is some disagreement), the main factors were demographic and temporary.[75]

The evidence on whether there has been a shift in earnings away from the middle is conflicting. Lawrence, for example, found that full-time workers earning a "middle-income" wage of $13,000 to $26,000 (in 1983 dollars) constituted 50 percent of the work force in 1969 but dropped to 46 percent in 1983, with 3 percent falling into the lower class group and 1 percent rising into the upper class group.[76]

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[71] Data on wages of production workers in manufacturing and service industries are from *Employment and Earnings*, September 1985. The overall service sector wage is a weighted average, calculated from earnings and employment in the various categories of service industries.

[72] U.S. Department of Labor, Bureau of Labor Statistics, "Nine Out of 10 New Jobs Projected to be in Service Industries," news release, USDL 85-478, Nov. 7, 1985.

[73] See ch. 4 for further discussion of the jobs being created in the U.S. economy, and the differences in character and pay from the jobs that are disappearing in the restructuring of American industry.

[74] See, for example, Barry Bluestone, "Industrial Dislocation and Its Implicatons for Public Policy," paper prepared for the Third Annual Policy Forum on Employability Development, Washington, DC, 1983; Bob Kuttner, "The Declining Middle," *The Atlantic Monthly*, July 1983; Thomas M. Stanback, Jr., "Work Force Trends," in National Academy of Engineering, *The Long Term Impact of Technology on Employment and Unemployment* (Washington, DC: National Academy Press, 1983); Lester Thurow, "The Disappearance of the Middle Class," *The New York Times*, Feb. 5, 1984.

[75] See, for example, Sar Levitan and Peter E. Carlson, "Middle-Class Shrinkage?" *Across the Board*, October 1984; "The Myth of the Vanishing Middle Class," *Business Week*, July 9, 1984, pp. 83-86; Robert J. Samuelson, "Middle-Class Media Myth," *National Journal*, Dec. 31, 1983. For a summary of both views, see Victor F. Zonana, "Is the U.S. Middle Class Shrinking Alarmingly? Economists Are Split," *Wall Street Journal*, June 20, 1984.

[76] Robert Z. Lawrence, "Sectoral Shifts and the Size of the Middle Class," *The Brookings Review*, Fall 1984. The drop in middle-class earnings was confined to males; 56 percent of male work-

Thurow found the same tendency in household incomes. If a middle-class household is defined as one whose income is between 75 and 125 percent of the median ($15,000 to $25,000 in 1982), the middle class shrank from 28.2 percent of households in 1967 to 23.7 percent in 1982. About half of those households changing status fell below the middle class, and half rose above it.[77] Rosenthal, analyzing pay data for 416 occupations, found no evidence of workers dropping from the middle. He found virtually the same proportion of workers in middle-income occupations (paying about $14,200 to $20,000 in 1982) in 1982 as in 1973.[78] Some of the disagreements in findings among these authors are due to differences in definition of the middle class, or differences in the time period chosen for analysis.

Those who are skeptical that the middle class is shrinking attribute any perceived declines in earnings or family incomes to the entrance of millions of baby boomers into the work force in recent years, thus swelling the ranks of low-income households. Another explanation of apparent shifts in household incomes is the increasing number of women in the work force. While women with working husbands and more education boost family incomes, those who are less educated or are single parents add to the number of low-income families.

Some analysts point to several factors that together may be responsible for a decline in the middle class since the end of the 1960s: higher unemployment, more single-person households, more two-earner families, the baby boom effect, and the changing industrial and job structure of the economy.[79] These analysts do not expect the shrinkage of the middle class to continue, but neither do they think the losses of the past few years will be reversed.

So far, the thesis of the declining middle may be judged not proven (to borrow the noncommittal verdict available to Scottish juries). If the thesis ultimately proves correct, if the technological gains that raise productivity and benefit society, but displace workers, do not come back to enrich and enlarge a middle class of well-paid workers, American society as a whole will be the loser. The healthy market that supports American business could decline, and the optimism and sense of fairness which are the basis for social harmony could be seriously damaged.

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ers were in the middle range in 1969, 47 percent in 1982, with most of the excess dropping into the lower earnings group. Female workers with middle-class earnings increased from 39 to 44 percent. Lawrence attributed most of the drop in the male worker middle class to entrance of the inexperienced baby boom generation into the job market.

[77] Lester C. Thurow, op. cit.

[78] Neal Rosenthal, "The Shrinking Middle Class: Myth or Reality?" *Monthly Labor Review*, March 1985.

[79] McKinley L. Blackburn and David E. Bloom, "What Is Happening to the Middle Class?" *American Demographics*, January 1985.

Chapter 4

Employment and Worker Displacement

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Chapter 4

Employment and Worker Displacement

INTRODUCTION

Worker displacement is a continuing feature of a dynamic economy. Without the ability to abandon unprofitable lines of business, or to install the most up-to-date technologies, the U.S. economy would lose its capacity to adapt to global competitive conditions. These changes, however, mean worker displacement. Displacement is recognized as a characteristic of declining economies; it is less often recognized as a feature of growing, prosperous ones.

In the industrialized world, conditions of production and competition are constantly changing: new techniques of production are found, new products are made and consumed, and old techniques and products fall by the wayside. New competitors enter the field, forcing existing firms to adjust or fail. Increasingly, the competition is international. The number of countries whose products can hold their own in industrialized countries is growing. There is also a growing conviction that the pace of change is accelerating,[1] adjustments must be made more often, and the pressure to change before the competition changes is intensifying. This dynamism is ultimately good for society as a whole. Competition and change allow wider choices among goods and services at lower cost than would be possible in a static economy.

Accelerating technological change and world economic interdependence also mean, however, that many American workers are displaced and that some must make forced work transitions several times during their lives. Some people are able to do so without much trouble; others find these transitions traumatic. In general, work transitions are easier during periods of healthy economic growth, but it is quite possible that as many people must make work transitions during periods of growth as in periods of decline.

Job displacement is usually not a national policy issue during prosperous times. Even though the pressures forcing worker adjustment may be great, healthy levels of job creation, which *in the past* have accompanied economic prosperity, can help alleviate workers' problems of displacement. It is during recessions that attention has focused on displaced workers, usually as part of a broader concern about unemployment. At these times, displacement becomes very visible, for displaced workers are likely to be unemployed for long periods, and their prospects for reemployment at wages close to their old wages are dim.

Since public concern over displacement tends to be cyclical, support for programs to aid displaced workers is cyclical as well. Two national displaced worker programs of the post-World War II period—the Manpower Development and Training Act (MDTA) of 1962 and Trade Adjustment Assistance (TAA)—were changed as public interest in displacement waxed and waned. Whether the Job Training Partnership Act of 1982 will be redirected during prosperous times remains to be seen, Congress has reduced funding for the Title III program by more than half for fiscal year 1986. It was argued, however, that unspent funds carried over from the previous year were large enough that the cut would not necessarily force reductions in service to displaced workers.

MDTA was passed in 1962, following a period of rising unemployment and much concern over the effects of automation and technology on work. At about the same time, however, the Federal Government was providing substantial fiscal stimuli to the economy, first by a cut in personal income taxes and then by simultaneous financing of the Vietnam War and the Great Society programs. To these fiscal stimuli were added a variety of programs designed to reduce unemployment.[2] Thus, for many reasons the unemployment rate fell during the 1960s. By mid-decade, as the unemployment rate for adult white males fell to 1.9 percent, the focus of MDTA shifted from displaced workers to disadvantaged workers.[3]

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[1] See, for example, Richard W. Riche, "Impact of New Electronic Technology," in *Monthly Labor Review*, March 1982; Anthony P. Carnevale, and Harold Goldstein, *Employee Training: Its Changing Role and an Analysis of New Data* (Washington, DC: American Society for Training and Development Press, 1983) p. 6; U.S. Congress, House Joint Hearings on Technology and Employment, before the Committee on Science and Technology Subcommittee on Science, Research and Technology, and the Committee on the Budget Task Force on Education and Employment, Serial No. TF4-4 (Committee on the Budget), Serial No. 41 (Committee on Science and Technology); June 1983, p. 24.

Despite the general prosperity of the time, quite a few workers were displaced. For instance, a large automobile company—Studebaker—went out of business, and meatpacking plants were shut down as technology advanced and markets shifted. Many workers deprived of their jobs by these changes had a hard time finding new ones, especially new ones as good as the old. In general, however, worker displacement faded as a public policy issue. As fears about automation passed, many observers concluded that the experience of the 1960s had shown that technology created more jobs than it destroyed. The impact of trade on unemployment and worker adjustment was a relatively minor issue at the time. Although the Trade Expansion Act of 1962 authorized TAA funds for workers who had lost their jobs due to international trade, no workers were certified as TAA recipients between 1962 and 1969, and no TAA funds were expended.[4]

The trend of falling unemployment reversed in the 1970s when the labor force outgrew employment by almost 0.15 percent annually, and unemployment rose from 4.8 percent in 1970, to 7 percent in 1980 (figures 4-1 and 4-2). Interest in the problems of displaced workers resurfaced. In 1974, the Trade Act relaxed the requirements for worker eligibility for TAA funds, and TAA expenditures rose from just over $50 million in 1975, to $2.2 billion in 1980.[5] During the late 1970s, TAA was the only major Federal program that specifically benefited displaced workers, and even then, only workers affected by trade. No Federal program was directed to the needs of adult displaced workers in general until the early 1980s. In 1982, a recession year, Congress passed the Job Training Partnership Act (JTPA), which included Title III, a program to aid displaced workers whose jobs had disappeared. The unemployment rate at that time was approaching 10 percent.

In the mid-1980s, after 3 years of economic recovery, displacement seems to have faded somewhat as a public policy issue. Unemployment fell during 1985, the civilian rate dipping to 7 percent in August for the first time since the recession. In early 1985, the Administration proposed to reduce the funding of Title III of JTPA by more than half, citing a slow rate of spending and lack of demand for the more expensive adjustment services such as retraining.[6] The Administration also proposed to let all TAA services expire. Late in the year, Congress reduced Title III funds for fiscal year 1986 as the Administration had proposed, but indicated no intention of allowing services to displaced workers to diminish. Labor Department officials argued that carryover funds would allow States to continue services at the same level as in fiscal year 1985. And, as concern mounted over the U.S. trade deficit, foreign competition, and their effects on jobs, there were renewed proposals for offering readjustment services to displaced workers affected by trade.

It is premature to conclude that history is repeating itself. Indeed, there may be reason to cut funding for displaced worker programs during times of economic expansion, and in-

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[2] Edward D. Kalachek, *Labor Markets and Unemployment* (Belmont, CA: Wadsworth Publishing Co., Inc., no date), p. 116.

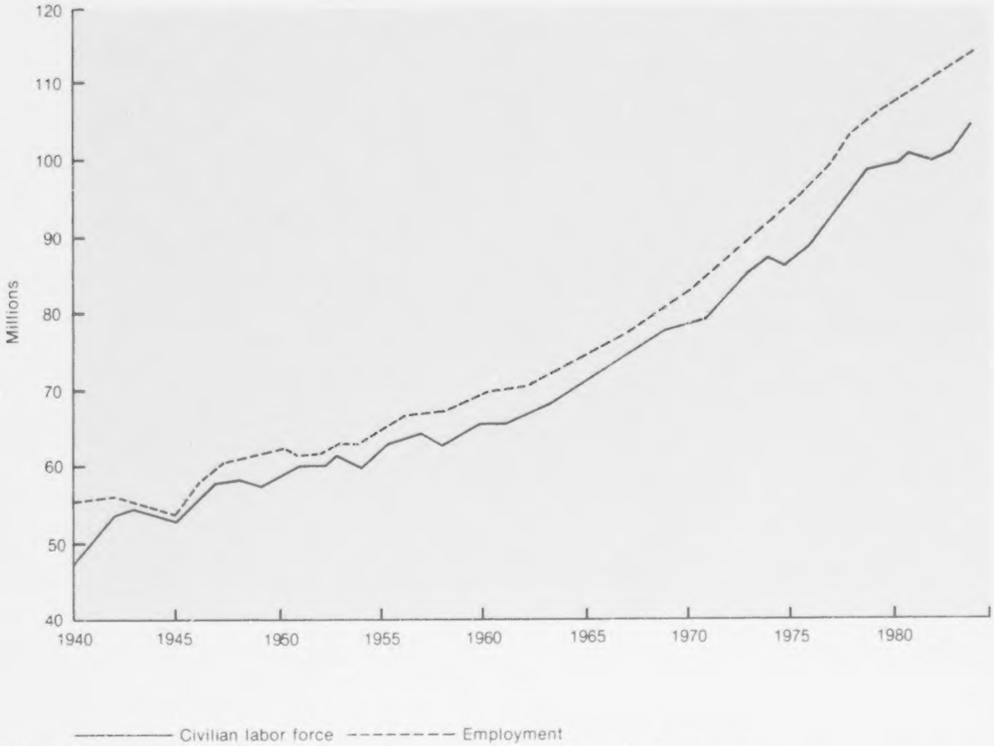
[3] Karen Spar, Library of Congress, Congressional Research Service, "Job Training Partnership Act: Background and Description," Report No. 83-76 EPW, Apr. 19, 1983, p. 1.

[4] Robert Bednarzik and James A. Orr, U.S. Department of Labor, Bureau of International Labor Affairs, "The Effectiveness of Trade-Related Worker Adjustment Policies in the United States," Economic Discussion Paper 15, February 1984, p. 13.

[5] Ibid.

[6] As this report went to press, the House and Senate Appropriations Committees had approved the $100 million budget for JTPA Title III for fiscal year 1986, as proposed by the Administration.

Figure 4-1.—Labor Force and Employment in the United States, 1940-84



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*, various issues.

crease it in hard times when jobs are scarce and adjustment is more difficult for those displaced—assuming that funding is adequate to begin with. (See ch. 5 for further discussion of this point.) But a better understanding of the relation between economic growth, job losses and creation, and displacement may help to steer a steadier course in responding to the problems of worker displacement.

Causes of Displacement: Technological Change

Technology has changed worklives for centuries, first enabling agriculture to support larger populations than hunting and gathering could do and later liberating people from subsistence agriculture. In the 20th century, technology has largely replaced human labor on farms in industrialized countries. Increasingly, it is replacing some of the more dangerous, onerous, and repetitive tasks in manufacturing and services. Electronic technologies are now also helping with routine mental tasks, including manipulating figures and spelling.

These changes have naturally brought about displacement, some of it far from painless. In 1811, after England had been at war with France for nearly 20 years, the skilled knitters of Nottinghamshire faced soaring food prices, sluggish trade because of the French and English blockades, lowered wages, and loss of jobs to new machinery and cheap child labor. The workers smashed the machines. In 11 months, they destroyed over a thousand knitting frames.[7] At the same time, wool croppers and combers

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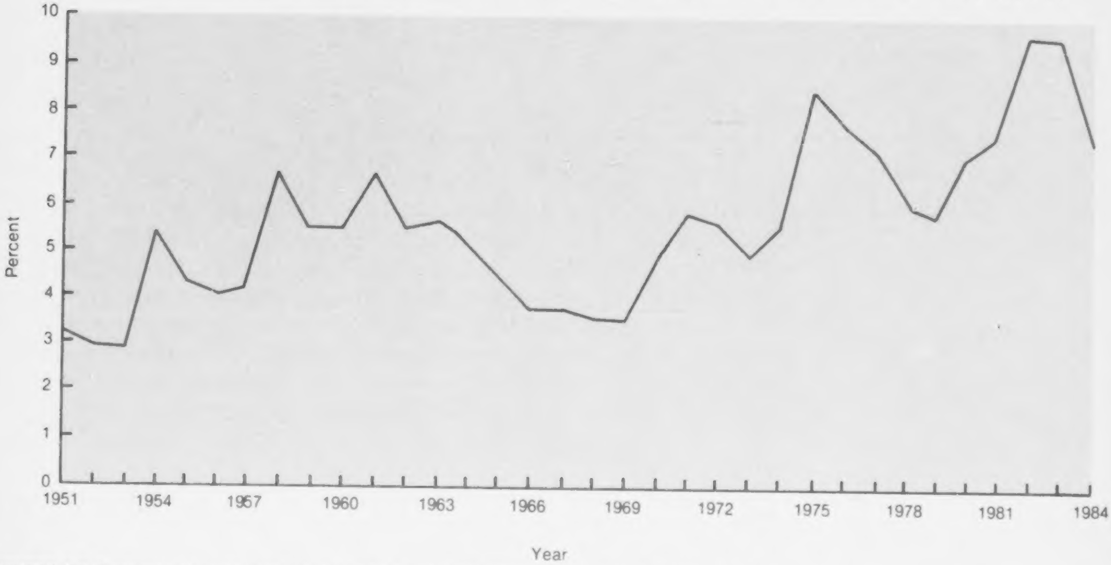
[7] Witold Rybczynski, *Taming the Tiger: The Struggle to Control Technology* (New York: Viking Press, 1983), pp. 36-37.

Figure 4-2.—U.S. Unemployment, Civilian Noninstitutional Population 16 Years and Over, 1951-84



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*, July 1985, p. 10.

also lost income and jobs when machinery replaced their skilled labor, and also destroyed the machines. Despite a few early successes, the Luddites (named for the mythical General Ned Ludd) were soon crushed. An army of 12,000 soldiers was dispatched to put down the uprisings, and the English Parliament repealed statutes dating from Elizabethan times that assured minimum wages, and fair hours and working conditions for laborers. England's handloom weavers and shearers, once independent and well paid, became the new poor.

In 20th-century America, the long migration of workers from farms to cities became a mass exodus after World War II. The postwar revolution in agricultural technology—the adoption of mechanical cotton pickers and harvesters, chemical pesticides and fertilizers, high-yielding crop varieties—forced farmworkers off the land. Employment in agriculture dropped by 3.6 million (42 percent) from 1947 to 1964. Writing in 1965, the National Commission on Technology, Automation, and Economic Progress called this exodus "the most profound of all displacements." Many of the displaced farmworkers, "suffering from deficient rural educations, lacking skills in demand in urban areas, unaccustomed to urban ways, and often burdened by racial discrimination, exchanged rural poverty for an urban ghetto."[8]

In the same period, Appalachian coal mining collapsed, displacing large numbers of workers. Between 1948 and 1968, oil and gas took over most of the coal market, and technological advances in mining eliminated still more jobs. During this time, employment in coal mining fell from 436,000 to 126,000. Between 1947 and 1954 alone, coal mining employment fell by 46 percent.[9] Despite special efforts to bring economic development and new jobs to Appalachia, and despite some recovery in coal production and employment after 1968, the region has not yet recovered. For instance, the unemployment rate in West Virginia, the heart of the coal mining region, was over 13 percent in August 1985, higher than in any other State.

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[8] U.S. National Commission on Technology, Automation, and Economic Progress, *Technology and the American Economy*, Volume 1 (Washington, DC: U.S. Government Printing Office, 1966), p. 20.

[9] Ibid., p. xii.

These examples from the past illustrate how serious, long-lasting social difficulties can arise from worker displacement and that technology is a potent factor in causing displacement. *The conclusion is not warranted, however, that technological change alone is responsible for the problems of displacement, or that curtailing technological advance will minimize displacement.* Technological change is a powerful engine for economic growth. While technological change has destroyed some jobs, it has not destroyed work. Some observers have suggested that, with technology replacing people in many endeavors, there will eventually be less work left for people to do. So far, however, the ability of people to create new endeavors as old ones are mechanized, and to devise new products to satisfy old and new needs, has roughly kept up with the ability of mechanization to replace human effort. Indeed, technology has been a key ingredient in creating new jobs.

This idea is not new: it was a major conclusion of the National Commission on Technology, Automation, and Economic Progress in 1966. The Commission was created by Congress in August 1964, in response to national concern about the steady upward creep of the unemployment rate after World War II and widespread fears that automation would limit the growth of employment while the labor force continued to grow. By the time the Commission made its report in 1966, the unemployment rate had fallen to its lowest level in more than 10 years, and concern over displacement and technology had faded. The coincidence of a rapid fall in the unemployment rate, following on the heels of intense public concern over the displacement effects of automation, caused many observers to conclude unequivocally that technology creates more jobs than it destroys.

Certainly, technological changes have helped to create jobs; however, technology was only one of many factors responsible for the prosperity of the late 1960s. The fiscal stimuli and jobs programs of the period were extremely important. The experience of the 1960s may not repeat itself, nor does it support the view that technological change will always create more jobs than it destroys. As the Commission itself concluded:

> It has become almost a commonplace that the world is experiencing a scientific and technological revolution . . . According to one extreme view, the world—or at least the United States—is on the verge of a glut of productivity sufficient to make our economic institutions and the notion of gainful employment obsolete. We dissent from this view. We believe that . . . it diverts attention from the real problems of our country and the world. However, we also dissent from the other extreme view of complacency that denies the existence of serious social and economic problems related to the impact of technological change.[10]

Worker displacement is one of these problems. Undeniably, advances in technology have contributed to the strength of American industry, but it is equally clear that technology can promote industrial competitiveness while limiting employment. Changes in process technologies that increase productivity enable fewer workers to produce the same output. If productivity rises at a faster rate than output, the level of employment in the relevant sectors will fall. If changes in productivity are rapid and employment shrinks correspondingly, normal turnover and attrition cannot handle the needed work force reductions, and workers are displaced. Even if the economy is expanding and jobs are being created in other industries, many displaced workers still face adjustment problems.

Labor-saving technology has been a significant factor in the falling employment levels of the textile industry, for example. Between 1955 and 1977, production in the textile industry rose 113 percent, while employment dropped by 22 percent.[11] This trend still holds for the textile industry, and is increasingly found in other industries as well.

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[10] Ibid., p. 1.

[11] Vinod K. Aggarwal with Stephan Haggard, "The Politics of Protection in the U.S. Textile and Apparel Industries," *American Industry in International Competition: Government Policies and Corporate Strategies*, John Zysman and Laura Tyson (eds.) (Ithaca, NY, and London: Cornell University Press, 1983), p. 259.

Employment in the steel industry dropped from a peak of 726,000 workers in 1953 to 289,000 workers in September 1985. Output rose moderately in the 20 years 1953-73, from 112,000 tons to 151,000, but declined afterward, dropping to 93,000 tons in 1984.* According to one analysis, "there has been a steady improvement and change in technology that is used by the U.S. steel industry . . . This has led to the reduction in employment."[12] The outlook for steel employment, moreover, is not expected to improve: "The remainder of the decade will probably see further losses in jobs with total employment approaching the 200,000 level by 1990."[13]

The automobile industry probably faces a similar future. It has already lost jobs due to a combination of foreign competition, plant modernization, and maturity of the market.[14] In May 1979, employment in the auto industry was at an all time high of 1,048,000 workers. Six years later, in May 1985, employment in the industry stood at 883,000—a drop of 165,000, or about 16 percent. It probably will fall further by 1990, even if the industry's modernization and reinvestment program allows it to regain the competitiveness it lost in the 1970s,[15] because it is highly unlikely that the demand for motor vehicles will increase as rapidly as productivity.

Steelworkers are probably the most visible of today's displaced workers, but there are others from a variety of industries. Some analysts expect that the introduction of new technologies, such as computers and telecommunications, will make it increasingly difficult to maintain employment in a number of industrial sectors.

A critical question, of course, is the effect of technological change on employment as a whole, on the creation of new jobs as well as on the destruction of old ones. Rosenberg says:

> It seems to be much easier to anticipate the employment-displacing effects of technological change than the employment-expanding ones . . . Even a casual glance back into history appears to confirm this . . . In the 1950s, when the computer was still in its infancy, it was confidently predicted that all of America's future needs would be adequately catered to by a dozen or so computers. Even Thomas Edison, a genuine inventive genius, is said by one of his biographers to have anticipated that the phonograph would be used primarily to record the death-bed wishes of elderly gentlemen![16]

Whether technological innovation will in the future create more jobs than it destroys is not known. What is certain is that such innovation will continue to require reallocations of the work force.

Besides affecting the number of people working in particular industries, technology also powerfully affects the kinds of work people do. The aggregate effects of these changes, however, are neither simple nor predictable. Much has been written about the de-skilling effects (i.e., reduction in the skill requirements of jobs) of new technology, and there is equally voluminous literature on technology's stimulating effect on demand for more skilled and better educated people. Some observers think both things are happening, creating a gap in the middle-skill or middle-income range. *However, the effects of technology on the types of jobs*

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*American Iron and Steel Institute. Figures for 1985 were not yet final when this reported was prepared, but indicated a further drop in steel production, to below 90,000 tons.

[12] Joel S. Hirschhorn, Testimony at Joint Hearings, *Technology and Employment*, before the House Committee on Science and Technology, Subcommittee on Science, Research and Technology and the House Committee on the Budget, Task Force on Education and Employment, Serial No. 41 (Committee on Science and Technology), Serial No. TF4-4 (Committee on the Budget), June 1983, p. 283.

[13] Ibid., p. 285.

[14] U.S. Congress, Office of Technology Assessment, *U.S. Industrial Competitiveness: A Comparison of Steel, Electronics, and Automobiles*, OTA-ISC-135 (Washington, DC: U.S. Government Printing Office, 1981).

[15] See, for example, ibid., p. 95; and Alan Altshuler, Martin Anderson, Daniel Jones, Daniel Roos, and James Womack, *The Future of the Automobile: The Report of MIT's International Automobile Program* (Cambridge, MA: The MIT Press, 1984), pp. 204-205.

[16] Nathan Rosenberg, Testimony at Joint Hearings, *Technology and Employment*, before the House Committee on Science and Technology, Subcommittee on Science, Research and Technology, and the House Committee on the Budget, Task Force on Education and Employment, Serial No. 41 (Committee on Science and Technology), and Serial No. TF4-4 (Committee on the Budget), June 1983, p. 283.

available and the kinds of tasks workers perform is never independent of human decisions. Managers, engineers, designers, and, to some extent, workers themselves all have some power over the design of work, but none of these groups has the exclusive power to define jobs. Each group is constrained by the actions and decisions of all the others. As a result, if jobs are de-skilled, or a skills gap created, the problem is not a failure of technology, but one of human systems. Chapter 8 gives a more detailed analysis of the effects of technological change.

Causes of Displacement: International Competition

International trade, like technological change, can bring about gains or losses of jobs—gains from exports and losses (in a less direct and consistent way) from imports. In the middle 1980s, the losses were much more apparent than the gains. Trade has many important economic effects, of course, other than those on jobs—e.g., putting pressure on national economies to concentrate their resources on what they produce most efficiently, and bringing a wide variety of goods, at low cost, to consumers throughout the world. This brief discussion, and the more detailed consideration in chapter 9, does not cover the broader aspects of trade but concentrates on the employment effects, and in particular, on displacement of workers.

Loss of international competitiveness by U.S. firms employing U.S. workers also results in displacement. A few industries, such as steel, apparel, textiles, and shoes, have been strongly challenged by foreign competitors for decades. In the past dozen years, many more industries have been affected, a trend much accelerated in the 1980s. In 1971, the United States experienced a trade deficit in merchandise (manufactured and natural resource goods) for the first time in 90 years. It totaled $2.3 billion.[17] Between 1971 and 1985, there were 2 years of merchandise trade surpluses (1973 and 1975); otherwise, the picture has been one of mounting deficit. In 1984, the merchandise trade deficit was $107 billion. The job losses due to deteriorating trade balances cannot be measured directly, but one source estimated that as many as 3 million Americans would be unemployed in late 1985 as a result.[18]

The great rise in the value of the dollar since 1981 is a major reason for the recent unprecedented trade deficits; the rise of the dollar, in turn, has been linked to large Federal budget deficits and high interest rates—all part of a set of complex relationships that are not considered in this report. In addition to the powerful influence of the overvalued dollar, a number of industries have longer standing and more basic competitive problems; they have been losing out to foreign producers at least since the late 1970s, when the dollar was undervalued. Examples are steel, autos, machine tools, agricultural machinery, radio and TV sets, and parts of the semiconductor industry, as well as apparel and footwear.

There is no one-for-one correspondence between job gains due to exports and job losses due to imports. The case of exports is simpler, however; exports add to the total demand for products made in the United States, and stimulate employment. Even so, exports can rise without a corresponding rise in jobs, if labor productivity is rising. This occurred in 1984; the value of merchandise exports went up $20 billion, yet the number of export-generated jobs decreased slightly, from 4.6 to 4.5 million. The level of exports is still the major influence, however; jobs due to exports were estimated to be 6 million in 1980, and 5 million in 1982, after the value of merchandise exports fell from $224 to $211 billion (without adjusting for inflation).

The relationship between jobs and imports is more complex. If imports rise, jobs in the United States may not decline, for several reasons. The most important is that rapidly growing world demand may compensate for increased imports, so that U.S. employment can rise even in an industry which is losing part of its market share to foreign producers. This was the case in the semiconductor industry from 1978 through 1984; despite rising imports, U.S. employment grew. Only in 1985 were some job losses registered in the industry, largely due to slumping demand. In the more mature auto market, on the other hand, where world demand has grown slowly or remained static in recent years, U.S. workers have lost jobs as foreign producers (mainly the Japanese) gained a larger share of the market.

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[17] Thomas O. Bayard, *Trends in U.S. Trade: 1960-79*, U.S. Department of Labor, Bureau of International Labor Affairs, Economic Discussion Paper 7, October 1980, p. 13.

[18] C. Fred Bergsten, Director, Institute for International Economics, "U.S. Trade Deficit: Causes, Consequences and Policy Responses," testimony at hearings on the U.S. Trade Deficit, before the House Committee on Ways and Means, Subcommittee on Trade, March and April, 1984; Serial No. 98-73, p. 180.

Firms facing great pressure from imported goods or services may choose among several strategies to protect themselves, including:

- retooling existing production facilities to cut cost and raise efficiency of production;
- moving production to low-wage countries;
- moving production to lower wage parts of the United States;
- going out of business, or moving into less threatened lines of business; and
- asking for trade protection.

Most industries faced with international competitive pressure take all or most of these steps, as did, for example, the textile and apparel industries. In 1933, in response to depressed prices, the Federal Government instituted price supports for cotton.[19] While this provided some relief to cotton farmers, it placed some cotton textile and apparel manufacturers, who were unable to buy cheaper foreign cotton (because of a restrictive quota) at a disadvantage. In addition, the apparel industry, which had always relied on the secondary labor market,[20] had to raise wages when minimum wage legislation was enacted (even though apparel wages remained much below the average private sector wage). Unable to compete effectively with cheap foreign cotton and cheap foreign labor, and facing smaller markets due to substitution of other materials for cotton and declining per capita expenditures on apparel, firms in the industry turned to most of the strategies listed above. Many firms moved south to capture the lower non-union wages; many retooled to handle synthetic fibers. Some businesses did both. Some firms, particularly smaller firms, were unable to adjust, and went out of business. Finally, the industries lobbied for, and got, trade protection, first the Short Term Arrangement in 1961, then the Long Term Agreement, and later the Multifiber Arrangement, which is in force until July 31, 1986.

While these adjustments were taking place, many workers were displaced. Employment in the apparel industry fell from over 1.4 million in 1973 to less than 1.2 million in 1984. This loss represents only a fraction of the displacement that has occurred in this industry. Earlier, as firms moved south and west, the share of textile industry employment in the Northeast dropped from 40.5 percent in 1950 to less than 22 percent in 1970. The pattern was similar in apparel: employment in New York and Pennsylvania, which accounted for 47 percent of industry employment in 1950, dropped to 24 percent by 1975.

Many other industries today face the same kinds of pressure. Some, like the steel industry, have been pressured by international competition for decades; others, such as the semiconductor industry, have many challenges still ahead of them. Chapter 9 provides a more thorough discussion of the effects of trade on employment.

Causes of Displacement: Changing Consumption

Finally, changes in domestic consumption patterns can cause worker displacement. Public tastes and preferences change. New products are introduced, old ones are abandoned. Blacksmiths lost jobs as the automobile replaced the horse as a primary means of transportation. Adding machines are replaced by hand calculators, and hand calculators, sometimes, by microcomputers. Often, just a slowdown in the growth of demand for a product, while labor productivity is improving, is enough to cause displacement in an industry. This was true, for instance, in the apparel and footwear industries. Between 1950 and 1977, expenditures on clothing and shoes fell from over 10 percent of personal expenditures to to less than 7 percent.[21] Although personal expenditures rose in absolute numbers, growth in productivity exceeded growth in demand for apparel.

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[19] This description of the textile and apparel industries is drawn from Aggarwal with Haggard, op. cit., pp. 249-312.

[20] The secondary labor market includes less skilled people who tend to enter and leave the labor market often or those who cannot command high wages.

UNEMPLOYMENT AND DISPLACEMENT

Displacement problems should not be confused with unemployment problems. They are related, of course. For displaced workers and others, finding a job is more difficult when the general unemployment rate is higher than in more prosperous times. Yet, for many displaced workers, getting a job is not simple even when the unemployment rate is low. *Moreover, what is considered a low unemployment rate has been changing steadily for more than three decades.*

The "natural rate" of unemployment is a theoretical concept, defined as the lowest unemployment rate the Nation can sustain without inflationary pressure. This "natural rate" has been altered to accommodate a steadily rising unemployment rate. This rate, also referred to as the "benchmark" rate of unemployment, is supposed to represent the rate of unemployment society considers acceptable; therefore, when the rate is at the benchmark, full employment is considered to exist.

The concept of a "natural" or "benchmark" rate of unemployment is an outgrowth of the theoretical relationship between unemployment and inflation. This relationship, according to the well-known Phillips curve, is inverse; i.e., as unemployment falls below a certain rate, inflation rises. In the early 1960s, this "natural" rate of unemployment was thought to be about 4 percent.[22] This rate was proposed by the Kennedy Council of Economic Advisors, who concluded that it represented frictional and structural unemployment expected to occur regardless of economic conditions. If unemployment fell below 4 percent, many economists believed, inflation would begin to rise sharply.[23]

With the rising unemployment rate in the 1970s, some analysts attempted to reestimate the "natural" rate, using economic modeling techniques. Most current analyses conclude that the "natural" rate of unemployment has increased following World War II. According to a recent staff study of the Joint Economic Committee (JEC), the natural rate of unemployment increased by 2.24 percentage points in the 1960s and 1970s, from 4.38 percent between 1961 and 1969 to 6.62 percent between 1973 and 1979, and there are indications that it has risen still further since 1979. Connaughton and Madsen estimate that the rate increased from 4 percent in 1961 to 6.7 percent in 1981.[24] The increase in the "natural" rate is attributed to several factors, but most analyses emphasize the increased participation of women and teenagers in the labor force. The JEC, for example, attributes 57 percent of the increase in the natural rate to increased participation of so-called nonprime demographic groups, namely teenagers and women. These groups of people, according to the JEC study, have higher unemployment rates due to their lower skill levels and relative lack of work experience. There is some evidence, however, that this explanation is not entirely correct. In the early 1970s, it appeared that rising unemployment rates were due primarily to youth unemployment. By the late 1970s, however, unemployment among prime-age men had risen. It accounted for nearly 57 percent of the increase in the overall unemployment rate between 1977 and 1982; during the same period, the contribution of prime-age women remained unchanged.[25]

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[21] Aggarwal with Haggard, op. cit., p. 256.

[22] John E. Connaughton and Ronald A. Madsen, "Estimating Benchmark Unemployment for the 1980s," paper prepared for the 1982 American Economics Association annual meeting.

[23] Even inflation, according to some analysts, is not enough to keep unemployment below its natural rate in the long run. See U.S. Congress, Joint Economic Committee, *The Natural Rate of Unemployment* (Washington, DC: U.S. Government Printing Office, 1982).

[24] Connaughton and Madsen, op. cit.

The other major causal factor in the rise of the "natural" rate, according to the JEC study, is the expansion of the social safety net, including unemployment insurance compensation, medical payments, food stamps, and other forms of social welfare. These programs change "people's attitudes with respect to what is an acceptable job, producing an upward drift in the natural unemployment rate."[26]

The fact that unemployment rates have been on an upward trend since the end of World War II suggests that structural unemployment is on the rise in the U.S. economy. To attribute this trend to a rising "natural rate" of unemployment implies that nothing needs to be or can be done about it—a very dangerous choice. Employment and training programs, both for disadvantaged and displaced workers, are attempts to counter the effects of structural causes that keep people who want jobs out of work. To the degree that these programs succeed, the trend of rising unemployment rates will be halted or reversed.

Most forecasters expect that, given steady economic growth and rising productivity, the unemployment rate will decline gradually or remain about where it is.[27] Some analysts, however, anticipate a labor shortage beginning in the late 1980s, marking the end of the 40-year trend toward increasing unemployment. According to this school of thought, the rising unemployment rates of the past 15 years were due mostly to demographic factors—particularly the entry of the baby boom generation and more women into the labor force.[28] As the number of people entering the labor force declines in the late 1980s, the unemployment rate is expected to fall. Analysts taking this view largely discount the effects of structural factors. Other observers, pointing to the pervasive and rapid adoption of new technologies, and growing problems of U.S. international trade and the national debt, are less sanguine.

Without strong, sustained economic growth, the most likely prospect is that unemployment rates will remain high relative to historical standards. With moderate growth, unemployment might decline slightly in the next few years; with slower growth we might see very little decline in unemployment, even with fewer new entrants to the labor markets. With any kind of recession, unemployment could easily climb above 10 percent again, and might stabilize at a level even higher than the current rate, if historical trends are any guide. In any case, it is likely that manufacturing employment will continue to fall.

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[25] Michael Podgursky, "Sources of Secular Increases in the Unemployment Rate, 1969-82," *Monthly Labor Review*, July 1984, p. 21.

[26] U.S. Congress, Joint Economic Committee, op. cit., p. 13.

[27] Jane Seaberry, "High Jobless Rate Said Socially Harmful," *The Washington Post*, Feb. 22, 1985, pp. D1-D2.

[28] It should be recognized that neither of these factors explains the rising unemployment rates of the 1950s.

EMPLOYMENT TRENDS: THE UNITED STATES IN THE WORLD CONTEXT

Despite the relatively high unemployment of the mid-1980s, the United States is currently the envy of much of the industrialized world for its ability to create jobs, in contrast to the recent performance of Western Europe. In the 12 years from 1973 through 1984, the United States created 19.9 million civilian jobs.[29] During the same period the work force increased by over 24 million people (about 27 percent), with a resulting rise in the civilian unemployment rate (see figure 4-2) from 4.9 percent in 1973 to 7.5 percent in 1984. Over the same period, Great Britain, France, and West Germany together lost nearly 3 million jobs, while their combined work forces increased by nearly 3.3 million (4.5 percent). Civilian unemployment rates increased from 2.7 to 10.1 percent in France, 0.7 to 7.8 percent in West Germany, and 3.1 to 13.0 percent in Great Britain.[30] These three countries have fared substantially worse than some other Western European nations (figure 4-3), but are chosen for discussion because their economies most nearly resemble that of the United States.

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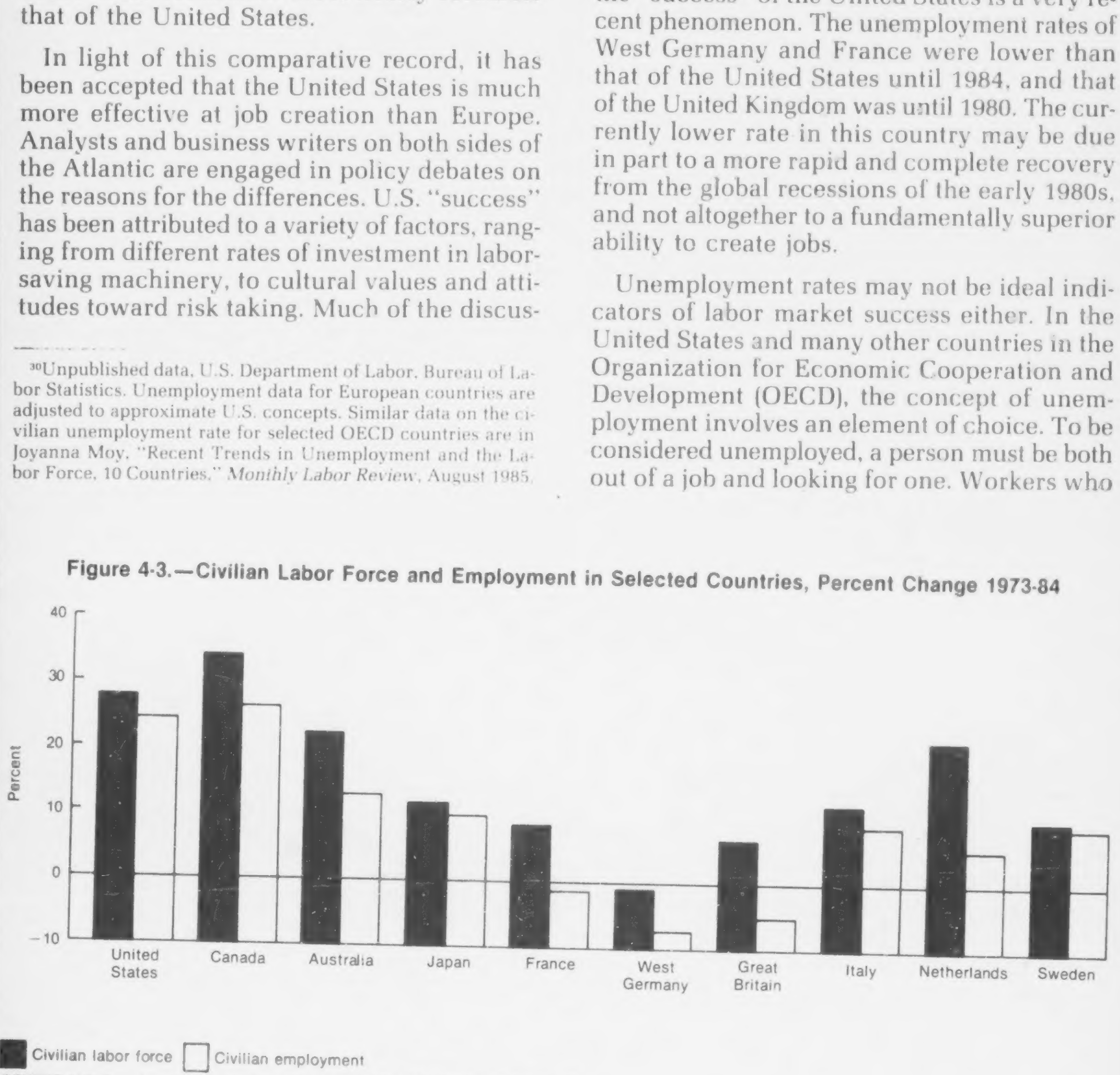
[29] Comparative statistics in this section are for civilian labor force and employment. The numbers change slightly if military employment is included. Data for European countries are adjusted to approximate U.S. concepts. See Joyanna Moy, "Recent Trends in Unemployment and the Labor Force, 10 Countries," *Monthly Labor Review*, August 1985; data for years earlier than 1975, U.S. Department of Labor, Bureau of Labor Statistics.

In light of this comparative record, it has been accepted that the United States is much more effective at job creation than Europe. Analysts and business writers on both sides of the Atlantic are engaged in policy debates on the reasons for the differences. U.S. "success" has been attributed to a variety of factors, ranging from different rates of investment in labor-saving machinery, to cultural values and attitudes toward risk taking. Much of the discussion, however, begs a basic question: by what standards is the United States doing better than Europe? In aggregate numbers of jobs added, and also in the rate of job creation, the United States is far and away the stellar performer in the Western world—partly because it has the largest work force of all Western industrial nations, and has also had the greatest rate of increase in its work force in the past dozen years. Measured by unemployment rates, however, the "success" of the United States is a very recent phenomenon. The unemployment rates of West Germany and France were lower than that of the United States until 1984, and that of the United Kingdom was until 1980. The currently lower rate in this country may be due in part to a more rapid and complete recovery from the global recessions of the early 1980s, and not altogether to a fundamentally superior ability to create jobs.

Unemployment rates may not be ideal indicators of labor market success either. In the United States and many other countries in the Organization for Economic Cooperation and Development (OECD), the concept of unemployment involves an element of choice. To be considered unemployed, a person must be both out of a job and looking for one. Workers who

Figure 4-3.—Civilian Labor Force and Employment in Selected Countries, Percent Change 1973-84



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, unpublished data, 1985.

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[30] Unpublished data, U.S. Department of Labor, Bureau of Labor Statistics. Unemployment data for European countries are adjusted to approximate U.S. concepts. Similar data on the civilian unemployment rate for selected OECD countries are in Joyanna Moy, "Recent Trends in Unemployment and the Labor Force, 10 Countries," *Monthly Labor Review*, August 1985.

are not actively searching for jobs are not defined as unemployed, but rather as nonparticipants in the labor force. In some cases, lack of participation may be due to attitudes and culture: for example, in some countries, it is not customary for women to seek work outside the home. However, poor prospects of landing a job may also discourage some people from looking for work. Thus, low participation rates may also be an indication of poor labor market performance.[31] It is useful to look at labor force participation rates in addition to unemployment rates, although neither is an adequate indicator of success, or lack of it.

Measured in terms of the total labor force divided by the population of working age (those 15 to 64 years old), U.S. labor force participation rates are high compared both to overall OECD labor force participation and the average of OECD Europe (figure 4-4). Interestingly, low participation rates appear to be related to high unemployment rates to some degree. Of the 12 countries with lower participation rates than the U.S. rate, 7 had higher unemployment rates. Only one of the four countries with higher participation rates than the United States had a higher unemployment rate. It is a mistake, however, to attach too much importance to this correlation. Japan, whose participation rate is the same as that of the United States, had a far lower unemployment rate (2.7 percent in Japan versus 9.6 percent in the United States in 1983). Both Canada and Great Britain, where participation rates are nearly the same as in the United States, had higher unemployment rates (11.9 and 12.8 percent, respectively).

Although comparing unemployment rates, labor force participation rates, and growth in employment cannot prove conclusively that the United States has a better record of job creation than Europe, this country has certainly been more successful than the largest Western European countries in the 1980s. No single reason can account for the difference. Although part of it may reflect faster U.S. recovery from recession, structural factors may play a part as well.

Reasons for Differences in Employment Growth

Job creation results from the birth of new enterprises, the expansion of existing ones, and inmigration (relocation of enterprises from outside the area to inside). Job losses result from the death of enterprises, their contraction, and outmigration. In an economy whose labor force is growing, such as in the United States, more jobs must be created than lost simply to maintain employment rates. Even in countries with more stable work forces, like West Germany and the United Kingdom, job creation is important to offset the normal, ongoing economic processes that result in job loss.

There is little persuasive information on what factors account for high rates of job creation. Despite the obvious connection between macroeconomic growth and job growth, the growth of gross national product (GNP) alone may not be sufficient to provide enough jobs to keep employment up. Between 1975 and 1983, output in the United States and Canada grew by 23 percent, and employment increased 17 percent. In Japan, output went up by 42 percent while employment rose only 10 percent. In Europe, output rose 23 percent while employment fell 1 percent.[32] In West Germany, GNP growth was 1 percent in 1983 and 2.5 percent in 1984; yet the German unemployment rate rose in both years.[33] Growth of gross do-

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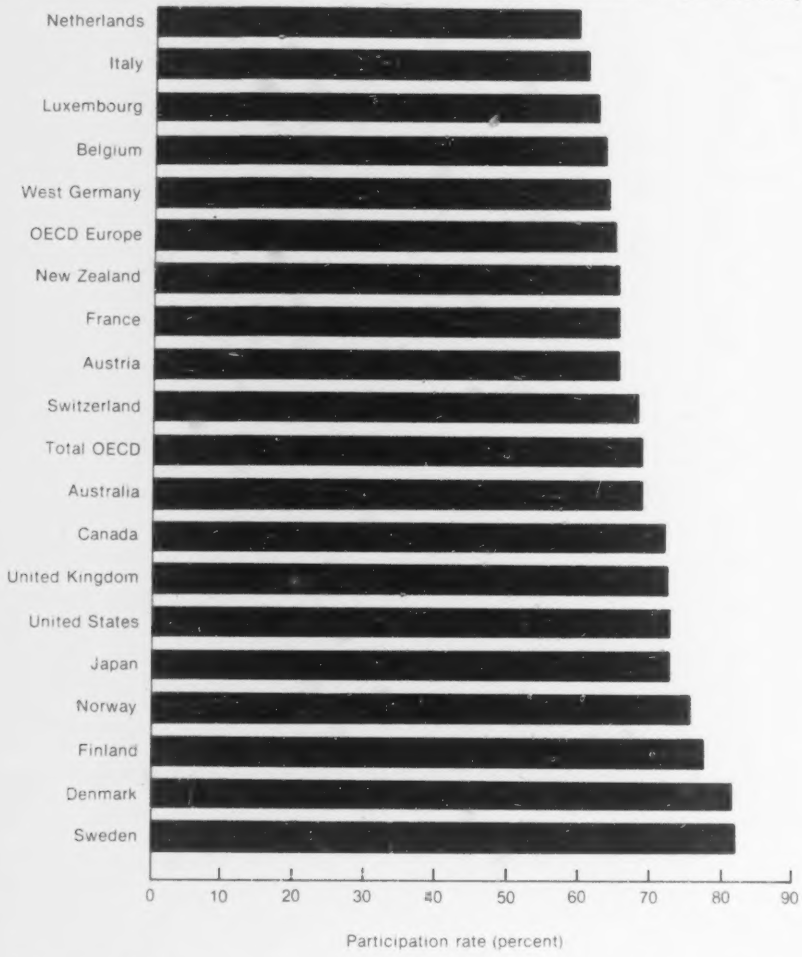
[31] In Italy, for example, discouraged workers (people who want a job but have given up looking because they think they cannot find one) outnumbered the workers counted as unemployed 11 to 10 in 1982 and 1983, using U.S. concepts. The number of discouraged workers in the United States amounted to 15 percent of the unemployed, both during the recession (last quarter of 1982) and during recovery (last quarter of 1984). Current data on discouraged workers are not available for all OECD countries. See Moy, op. cit., p. 17.

[32] *The Economist*, "The Spectre of Unemployment at London's Feast," June 9, 1984, p. 44.

[33] It is possible that the statistics themselves are somewhat misleading. Some European economists believe European statistics seriously overestimate unemployment because they neglect the "shadow" or "underground" economy and the employment it creates. Economists estimate that the West German underground economy adds several percentage points to the country's gross national product, according to Eckhardt Wohlers, "The Shadow Economy—An Expanding Field of Activity," *Intereconomics* (Hamburg: Verlag Weltarchiv Gmbh, September/October 1984), especially p. 215.

Figure 4-4.—Labor Force Participation Rates for Western Industrialized Nations, 1983



SOURCE: Organization for Economic Cooperation and Deployment, *OECD Employment Outlook*, (Paris: OECD, September 1984), p. 22.

mestic product in France has grown throughout the 1980s, averaging between 1 and 2 percent per year, while the French unemployment rate has risen steadily, from 6.4 percent in 1980 to 10.1 percent in 1984. As a result, European analysts take the notion of "jobless growth" seriously. Similar concerns are stirring in the United States as well. Recently, there have been warnings that the United States may undergo a "growth recession," or a period of economic growth too slow to reduce unemployment.

The jobless growth Europe has experienced, and the faster growth in output than in employment in other countries, reflects rising productivity. Growth in productivity is, of course, a desirable economic goal, just as job creation is. The higher worker productivity is in a national economy, the higher the wages that can be supported without loss of competitiveness. Growth in output in firms or industrial sectors without growth in jobs means higher standards of living—at least for the people employed in those firms and sectors. But unless job creation is going on elsewhere in the economy, and unless nations have workable ways of distributing the wealth that comes from rising productivity, the gap between the employed and the unemployed will widen.

Several factors may account for employment losses in major European countries over the past 10 years. These factors fall into three categories: 1) competitive problems, 2) economic structure and trade, and 3) labor and capital mobility.

Competitive Problems

A significant loss of ability to compete in world markets can hurt employment. Several explanations have been put forward for recent losses in competitiveness of European industrial nations. Among the suggested explanations are failure to invest enough in technology that would modernize existing industries; overinvestment in mature industries with competitive problems and not enough innovation and investment in high-technology growth industries; and rising costs, especially labor costs, aggravated by inflated currency values. Some of these explanations contradict each other, and some apply as much to the United States as to Europe, thus failing to account for the relative success of the United States in creating enough jobs for people seeking them. However, some may provide a partial explanation.

Failure to enter new kinds of industries can damage the competitive position of industrialized nations. Europe, once a pacesetter in scientific advance and technological innovation, has fallen behind the United States and Japan, according to many Europeans. In one example of the effects of this loss of leadership, the European Economic Community (EEC) lost 17 percentage points of the market share in world exports of high-technology products between 1972 and 1980.[34] This trend is viewed as a partial explanation for European difficulties in creating jobs, and in some sectors, losing jobs.

Failure to invest as rapidly as offshore competitors in technologies to modernize older industries has also been blamed for some of Europe's troubles. However, this argument applies equally to some U.S. industries, for example, steel. U.S. basic steel plants tend to be older, less efficient, and smaller than steelmaking facilities in other countries; failures to invest adequately in modern technology have contributed to the dwindling world market of the U.S. industry. Now, without protection, segments of the U.S. steel industry would have a hard time even in domestic markets. The U.S. industry's problems date back to the 1950s and 1960s; declining steel employment (due in part to rising productivity but also to loss of markets) is long-established (figure 4-5). Jobs in the industry fell, from a peak of 726,000 in 1953, to 289,000 in September 1985.

All industrialized countries, in fact, have lost competitiveness in industries that are particularly dependent on production labor. Steel, shipbuilding, textile, apparel, and automobile production and employment have been hurt in almost all major OECD countries, including the United States. One hypothesis for Europe's difficulty in maintaining employment is that the money spent by European governments to prop up mature industries with competitive problems diverts funds from other, higher growth sectors, and may only postpone job loss in the mature industries.[35] This argument (which is somewhat contradictory to the one blaming loss of jobs on failure to modernize older industries) is a variant of the idea that European countries have not invested enough in technologically advanced growth industries. Whether investment funds are diverted to older industries at home, or to high interest ventures in the United States—currently a much larger diversion—the point is that new industries are not being nourished.

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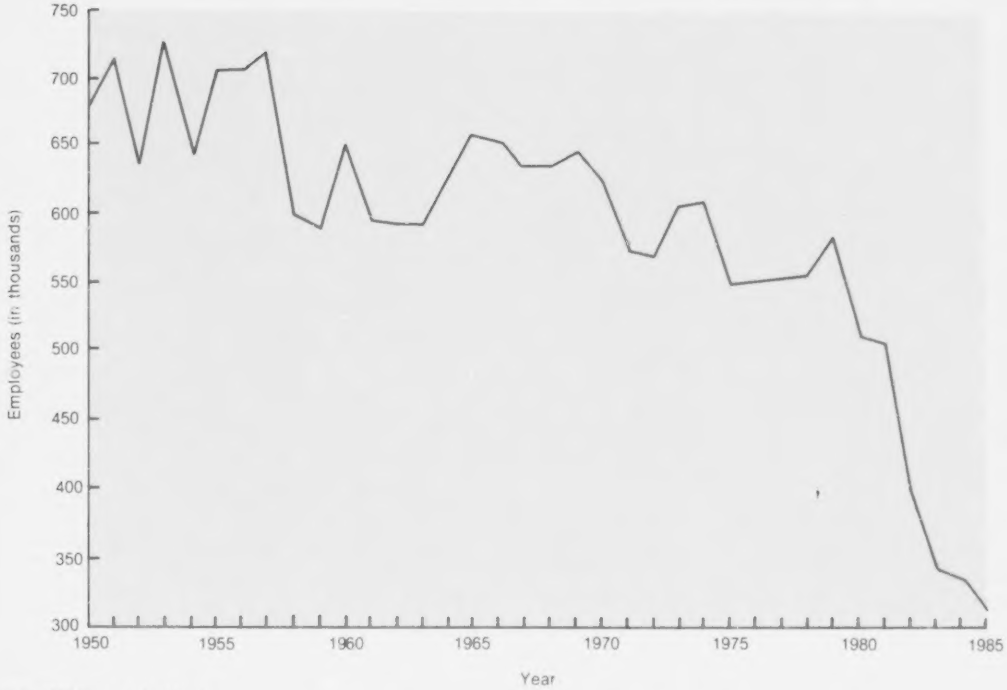
[34] Robin Knight, "Europe's High-Tech Gap Sets Off Warning Bells," *U.S. News and World Report*, vol. 98, No. 20, May 27, 1985, p. 45.

[35] See, for example, Robert B. McKersie and Werner Sengenberger, *Job Losses in Major Industries: Manpower Strategy Responses* (Paris, France: Organisation for Economic Co-operation and Development, 1983), p. 20; National Research Council, *The Competitive Status of the Steel Industry*, prepared by the Committee on Technology and International Economic and Trade Issues, Steel Panel, Office of the Foreign Secretary, National Academy of Engineering and the Commission on Engineering and Technical Systems (Washington, DC: National Academy Press, 1985), pp. 79-81, 99.

Figure 4-5.—Employment in the U.S. Steel Industry, 1950-85



Note: 1985 figure is for March.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*, various issues.

Overinvestment in declining sectors is an issue under discussion in West Germany. The German Government subsidizes a variety of industries, including agriculture and forestry, food, wholesale trade, energy, mining, iron and steel, shipbuilding, aerospace, railways, and shipping. Since 1979, subsidies per employed person have risen fastest in iron and steel, and shipbuilding.[36] While this kind of subsidy may postpone or stretch out the loss of employment in declining sectors, subsidies will not prevent eventual employment loss, and they probably discourage capital and labor from moving to higher growth sectors.

Labor costs and exchange rates also affect a country's competitive position. Labor costs depend on both wage rates and productivity. A country can afford to support higher wages for its workers if their productivity is higher than that of workers in other countries. For this reason, both the United States and industrialized European countries have been able to afford a relatively high standard of living without sacrificing their ability to compete in a variety of sectors. However, when a country's wages outrun productivity, or when even high productivity cannot overcome the advantage of low wage rates, declining competitiveness results. Managers often seek to move production offshore or to substitute capital for expensive labor in response. Both these strategies hurt employment—although less than going out of business, which is sometimes the alternative.

High wage rates are often a deterrent to hiring new workers and an incentive to automate or produce offshore in order to reduce dependence on expensive labor. During the 1970s, European wages were rising faster than European productivity, and the result was that

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[36] Organisation for Economic Co-Operation and Development, *Germany*, OECD Economic Surveys (Paris, France: OECD, July 1984), pp. 47-49.

European workers in some sectors priced themselves out of the market. European products became more expensive, hurting both sales and employment.

As an explanation for differences between U.S. and European employment gains, however, the argument is flawed. During the 1980s, the situation reversed. U.S. wage rates increased dramatically relative to wages in other nations, mostly because of the large rise in the value of the dollar. (In domestic terms, however, real hourly earnings of U.S. production and nonsupervisory workers on private nonagricultural payrolls were between 5 and 6 percent lower in 1985 than in 1977.) German manufacturing wage rates, once nominally 25 percent higher than those of U.S. workers, are lower than U.S. wage rates at present rates of exchange (figure 4-6).[37] Yet the United States, after the 1982 recession, was more successful in reducing its unemployment rate than was West Germany. Also, during the 1970s, when hourly compensation in many European countries (including West Germany, Sweden, Belgium, and the Netherlands) was higher in international monetary terms than it was in the United States, European unemployment rates were lower than U.S. rates.

The cost of other worker benefits, which can also increase labor costs, are not closely related to unemployment rates either. Total compensation, including wages, leave, financial bonuses, payments in kind (e.g., food, housing, medical treatment), and legally required private insurance, are higher in most major European countries, especially West Germany and France, than in the United States.[38] However, total compensation is also high in Japan, with its exceptionally low unemployment rate. The total compensation rates of the United Kingdom and Canada, where unemployment rates are significantly higher than in the United States, are close to corresponding U.S. figures.

Exchange rates have a much more profound influence on competitiveness than simply their effect on wage rates. High currency values make all of a country's products more expensive to foreigners, and make foreign goods more attractive in the domestic market. If exchange rate imbalances persist, it becomes difficult to create employment in industries with heavily traded products.

Great Britain learned this lesson in the first two decades after World War II, when British governments tried to maintain the traditional value of the pound sterling to protect its role as a reserve currency and the position of London as a financial clearinghouse.[39] That created unrealistic exchange rates that hurt British exporters. Britain finally devalued its pound in 1967, and agreed to let the pound float in 1971, but by then a great deal of damage to British manufacturing and employment had been done; according to one analysis, "It is hard to exaggerate the devastating consequences of the overvalued currency on British industry."[40]

The effort to devalue the pound was undermined in the late 1970s. North Sea oil earnings strengthened the pound, not necessarily with respect to the U.S. dollar, but certainly compared to other EEC currencies. This further encouraged imports, depressed exports, and generally depressed domestic employment. It was not until 1984, as oil prices fell, that the pound dropped relative to other currencies.[41]

The United States now faces a similar problem. Since 1980, the dollar has risen significantly against other currencies (figure 4-7), depressing U.S. exports and encouraging imports and offshore production. The result is a rec-

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[37] Richard S. Belous, "The Growing Gap Between U.S. and Foreign Labor Costs," *Congressional Research Service Review*, vol. 6, No. 3, March 1985, p. 10.

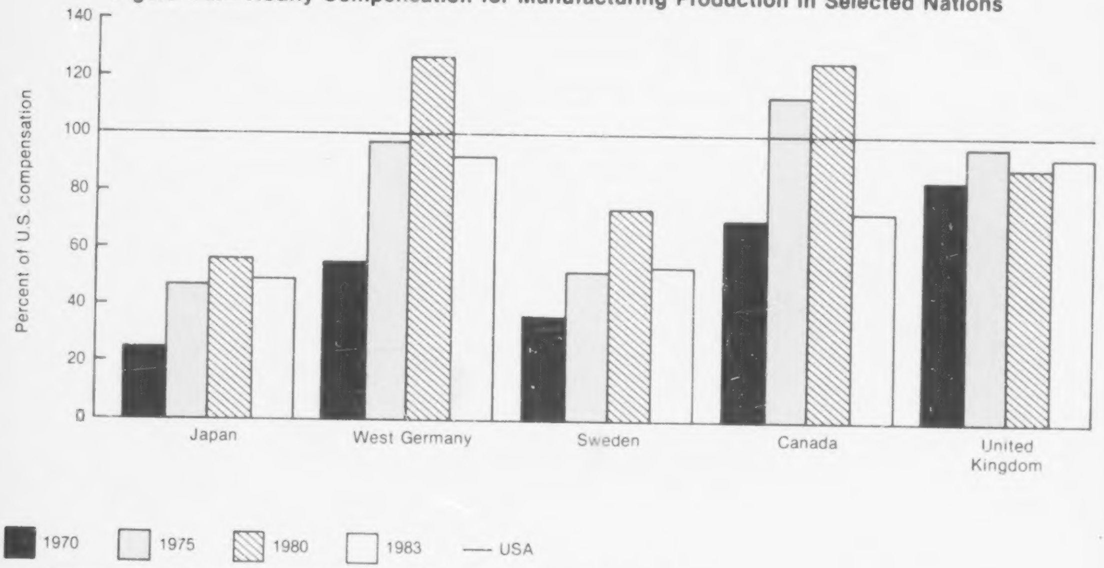
[38] Richard S. Belous, Library of Congress, Congressional Research Service, "An International Comparison of Fringe Benefits: Theory, Evidence, and Policy Implications," Report No. 84-815 E, pp. 13-16.

[39] John Zysman, *Governments, Markets, and Growth: Financial Systems and the Politics of Industrial Change* (Ithaca, NY: Cornell University Press, 1983), p. 173.

[40] Ibid., p. 174.

[41] During 1984, the pound fell 26 percent, to a record low of $1.05; at one point, the pound sank below a one-to-one exchange rate against the Soviet ruble. The British central bank stabilized the pound at $1.06. With the decline in the value of the dollar from its peak early in 1985, the pound had risen to about $1.40 in autumn 1985. The source of most of these statistics is Lawrence Ingrassia, "Sterling Drops Sharply Despite Good Health of the British Economy," *Wall Street Journal*, Jan. 17, 1985 and *The Economist*, Mar. 9, 1985, p. 104.

Figure 4-6.—Hourly Compensation for Manufacturing Production in Selected Nations



SOURCE: Richard S. Belous, "The Growing Gap Between U.S. and Foreign Labor Costs," p. 10.

ord trade deficit, with an accompanying loss of up to 3 million jobs.[42] The trade deficit has been particularly tough on manufacturing. Manufacturing employment fell by over 1.6 million from 1979 (annual average) to August 1985. The overvalued dollar was a significant factor.

Economic Structure

Manufacturing employment has declined in Europe as well as in the United States. Employment in industry declined in every OECD country except Japan in 1983, and average OECD employment in industry has fallen annually since 1979.[43] Most of the decline is in manufacturing. Most job creation has been in services, in OECD Europe as well as the United States.

Several interrelated reasons are often cited for losses of manufacturing employment: adoption of automation and other labor-saving machinery, competition from less developed and newly industrializing nations, and stagnant demand in many sectors. Manufacturing is certainly more vulnerable to foreign competition than are most service industries. As a result, few industrialized nations can expect to increase manufacturing employment, and many analysts expect absolute declines in manufacturing employment to continue.

Countries that depend greatly on manufacturing employment may have difficulty creating enough jobs in other sectors to offset their losses in manufacturing employment. This may be another partial explanation for differences in European and U.S. employment. Nearly 30 percent of employment in OECD Europe is in manufacturing, compared to about 20 percent in the United States. In 1981, nearly 34 percent of German workers were employed in manufacturing, down from nearly 40 percent in 1970. British manufacturing employment in 1983 was only 70 percent of what it had been in 1973, while services employment was nearly 10 percent higher.[44]

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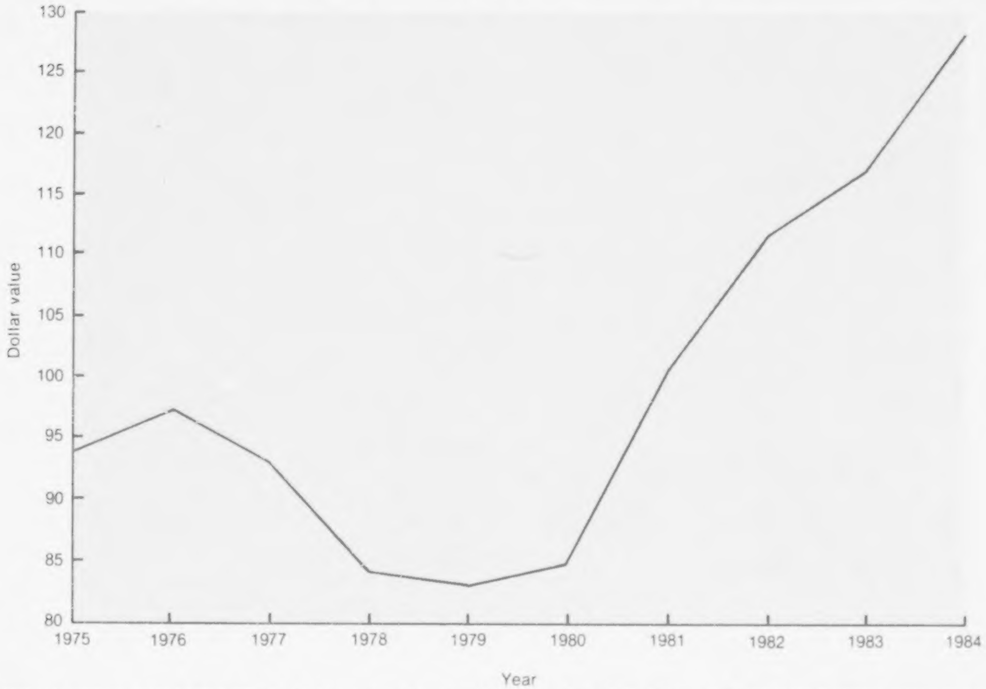
[42] Bergsten, op. cit.

[43] OECD statistics show employment by three sectors: agriculture, industry, and services. Industry employment consists of manufacturing; mining; construction; and electricity, gas, and water. Most of this is in manufacturing: 70 percent of all industry employment in Japan is in manufacturing, 69 percent in Canada, 72 percent in the United States, 71 percent in France, 77 percent in West Germany, and 74 percent in Sweden.

[44] Organisation for Economic Co-operation and Development, *United Kingdom*, OECD Economic Surveys (Paris, France: OECD, January 1984), p. 28.

Figure 4-7.—Multilateral Trade-Weighted Value of the U.S. Dollar, 1975-84 (March 1973 = 100)



SOURCE: Board of Governors of the Federal Reserve System, cited in Executive Office of the President, *Economic Report of the President*, transmitted to Congress February 1985 (Washington, DC: U.S. Government Printing Office, 1985), p. 351

Labor Mobility

Labor mobility can be a key factor in job creation. There are two aspects to labor mobility: industry or occupational mobility, and geographical mobility. On both counts, European labor may be less mobile than in the United States.

Proponents of this argument point out that, to hire new people readily, employers must be able to let workers go without undue difficulty. Rigid rules governing firing practices and generous nonwage compensation may constitute undue difficulty. It is generally more difficult for firms in many European countries to fire workers (other than for cause) than for U.S. businesses. The European approach is to protect employed workers, even though jobs or operations may be eliminated or redefined. In Europe, a combination of collective bargaining agreements, legislation, and social understandings discourages or prohibits businesses from laying off workers.[45] In West Germany, for example, one company reported that reducing its work force took several months and entailed negotiations on severance pay and benefits with almost every individual worker.[46] Severance pay can be quite high. When one automobile plant reduced employment in West Germany several years ago, the cost per laid-off worker was nearly $13,000.[47]

Although these policies probably make employers more reluctant to hire, and thus hinder job creation in Europe, they do have positive effects as well. At least until the recession of the 1980s, employment in most of Europe—particularly West Germany—has been more stable than U.S. employment in the face of cyclical economic variations. For individuals, this stability is desirable. However, when structural economic change is needed to keep up with global competition, such stability may be bought at a high price.[48]

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[45] McKersie and Sengenberger, cit., p. 70.

[46] John Alic, Senior Associate, Office of Technology Assessment, personal communication, June 19, 1985.

[47] McKersie and Sengenberger, op. cit., p. 77.

Geographic mobility is more difficult in Europe than in the United States for several reasons. First, movement across Europe's many national boundaries is considerably more difficult than movement within the United States. Aside from that, many Europeans are less willing to move or travel to a new job than U.S. workers.[49] In part, this may be a matter of culture. One British worker, with 13 years of experience at a clay factory before it closed in autumn of 1981, refused another job the company offered because it was 15 miles away. "It's a hell of a way off," he said. "I'm not a traveling man."[50] However, mobility could also be affected by the ease of transportation. U.S. workers may be more willing to take work farther from home because they are more likely to have automobiles. In the United States, the number of persons per car averages 1.9; comparable European figures are 2.5 in West Germany, 2.6 in France, 2.8 in Italy, and 3.4 in the United Kingdom.[51]

Employment Trends in the United States

The foregoing sections have discussed some of the reasons why the larger industrial democracies of Europe have created fewer jobs than the United States. However, the apparent U.S. superiority originated fairly recently. In the 1970s, the unemployment rates of the United Kingdom, West Germany, and France were below the U.S. rate. Moreover, the United States shares, or is beginning to experience, many of the problems Europeans face in creating new jobs. The high value of the dollar makes exporting difficult, encourages imports and offshore production, and raises U.S. wages relative to those of workers in other countries. U.S. involvement in world markets has increased, and so has the proportion of the U.S. economy which is exposed to foreign competition. In some sectors, outmoded plant and equipment diminish the competitiveness of U.S. industry. In much of the manufacturing sector there is great competitive pressure to invest in labor-saving machinery. Some service industries, such as banking and insurance, face similar pressure.

On the other hand, the greatest influx of new jobseekers into the U.S. labor market is over. According to many analysts, that flood of entrants was at least partially responsible for rising unemployment rates of the 1970s. Rates of labor force growth have slowed and are expected to continue slowing down. Between 1970 and 1980, the labor force grew annually by nearly 2.6 percent. The U.S. Bureau of Labor Statistics (BLS) forecasts that the labor force will reach 131.4 million in 1990, which means growth of less than 2.1 percent per year. From 1990-95, BLS forecasts labor force growth slowing to 1.0 percent per year.[52]

Employment Growth

Overall employment grows when the number of jobs created exceeds the number of jobs that disappear. In the United States, published employment figures refer only to net developments, rather than aggregate numbers of jobs created and lost. In general, the United States loses about 8 percent of its jobs each year, meaning that it must replace about half of its job base every 5 years.[53] Between 1970 and 1984, the United States added 26.3 million net jobs. During the same period, the work force increased by 30.7 million people, and unemployment rose from 4.9 to 7.5 percent. The large increase in the work force was the result of two factors: the entry of most of the "baby boom" generation into the labor market, and the increase in the participation rate of women. Between 1970 and 1982, the participation rate of women in the U.S. labor force increased from 43.3 to 52.6 percent, while the participation rate of men declined slightly,[54] probably because rising Social Security benefits made it possible for a great many men to retire earlier.

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[48] Ibid., p. 71.

[49] Janet Norwood, "Labor Market Contrasts: United States and Europe," *Monthly Labor Review*, vol. 106, August 1983, p. 7.

[50] Barry Newman, "In Britain, the Jobless Tend to Stay Jobless as Hirers Shun Them," *The Wall Street Journal*, May 7, 1984, p. 24.

[51] Christopher Wood, "Another Turn of the Wheel," *The Economist*, March 2, 1985, p. 3.

[52] Randolph Brown, "Demographics of the Current and Future of American Work Force," *Profit Sharing*, vol. 32, November 1984, p. 6.

[53] David L. Birch, Director, Program on Neighborhood and Regional Change, Massachusetts Institute of Technology, testimony at joint hearings on Technology and Employment before the House Committee on Science and Technology, Subcommittee on Science, Research and Technology, and the House Committee on the Budget, Task Force on Education and Employment, Serial No. 41 (Committee on Science and Technology), Serial No. TF4-4 (Committee on the Budget), June 1983, p. 87.

With this expansion came a slowdown in productivity growth, which some analysts argue was the result of the entry of a large group of relatively inexperienced workers. Others believe that the rush of new jobseekers brought down wages, which made hiring new people more attractive, in many cases, than capital investment. While the rate of growth of capital investment per worker declined, employment increased.

The Shift to Services

Nearly all the increase in employment since 1970 has been in service sectors. Of the 26.3 million new jobs added to the U.S. economy between 1970 and 1984, 23.3 million were on nonagricultural payrolls; the other 3 million were self-employed or employed in agriculture. Of the 23.3 million added nonagricultural jobs, only 223,000, or 1 percent, were in manufacturing (table 4-1).

The slight rise in manufacturing employment since 1970 conceals a shorter term trend. Manufacturing employment peaked in 1979 at 21 million people and has since fallen by more than 1.6 million employees.[55] The sectoral shift toward service industries is long-standing. Jobs in the service-providing industries began to outnumber these in goods-producing industries in 1922, and except for World War II have increased their relative share ever since. Job creation figures indicate that the shift toward employment in services is continuing. Between 1970 and 1984, manufacturing employment grew by an average rate of only 0.04 percent per year, while the number of employees on private sector payrolls grew at over 2.1 percent per year. Service employment increased at an annual rate of 2.76 percent. The growth rates of individual sectors ranged from 1.04 percent

Table 4-1.—Growth in Employment, Nonagricultural Payrolls, 1970-84

Sector	Number of new jobs (in thousands)	Percentage of new jobs
Total private	23,276	100.0
Goods producing	1,326	5.7
Mining	375	1.6
Construction	728	3.1
Manufacturing	223	1.0
Service producing	21,952	94.3
Transportation and public utilities	655	2.8
Wholesale trade	1,533	6.6
Retail trade	5,214	22.4
Finance, insurance, and real estate	2,020	8.7
Services	9,114	39.2
Government	3,415	14.7

Note: Numbers do not add due to rounding.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*, various issues.

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[54] Moy, op. cit., p. 47.

[55] The decline in manufacturing employment may be overstated. After the 1970s, manufacturing employment fell and did not recover fully until 2 to 4 years following the recession. The recovery of manufacturing employment less than 24 months into the current recovery may therefore be incomplete. On the other hand, manufacturing employment fell between December 1984 and July 1985. While the recovery from the 1982 recession has been somewhat more rapid than recoveries from other postwar recessions, manufacturing employment has recovered more slowly and less completely than in the past—in large part because of the trade deficit, never before such a prominent feature in a recovery. For a discussion on recovery of manufacturing employment after recessions, see Lynn E. Brown, "Structural Change and Dislocated Workers," *New England Economic Review*," January/February 1985, p. 20.

per year in transportation services (the highest paying service sector) to 4.29 percent per year in "other services," a BLS category that includes hotels and other lodging facilities, personal services, business services, auto repair and service, motion pictures, amusement and recreation services, health services, and miscellaneous services. In the last few years, service sectors have accounted for the fastest rates of growth in job creation (figure 4-8).

What kind of jobs are these new service jobs? Some service jobs are good jobs by almost any definition, but in general, poorly paid work is more prevalent in service industries than in manufacturing. Altogether, wages in nongovernmental service-producing industries, where the great job growth is taking place, are lower than in manufacturing. Of the 56.4 million employees in the private service-producing sector in July 1985, 45.4 million—80 percent—were in industries where production and nonsupervisory workers are paid less than the average for similar workers in all private jobs, and substantially less than the manufacturing wage. Average hourly earnings of nongovernmental production and nonsupervisory workers in services were $7.73, while comparable earnings in manufacturing were $9.53. The lowest hourly earnings in any major sector were in retail trade, in which 17.5 million production and nonsupervisory workers made an average of less than $6.00 per hour.[56] As table 4-2 shows, employment in many service sectors is concentrated in generally low-paid occupations such as those of service, clerical, and sales workers. In 1983, the average weekly earnings of managerial and professional workers were $440, compared to $305 for sales workers and $258 for clerical workers. Production workers, including precision production, craft, and repair as well as operators, fabricators, and laborers, had average weekly earnings of $320.[57] While employment in some service sectors is more heavily weighted toward higher paying managerial and professional jobs than manufacturing, almost all service sectors have greater concentrations of very low-paid people.

A frequently voiced concern is that many of the jobs in fast-growing industries pay poorly compared to jobs in declining industries. One study showed that the average weekly earnings of production workers in the 20 most rapidly declining industries was $310, while the corresponding earnings of production workers in the 20 most rapidly growing industries was only $210.[58] Of the 20 fastest growing sectors, 16 were service sectors. Only 6 of the most rapidly declining sectors were in services, while 10 were in manufacturing.

From the standpoint of the displaced worker, the salient feature about the distribution of the new U.S. jobs created in the last 15 years is that a great many are low paid and of low status. Without substantial re-education or retraining, blue-collar workers laid off from declining industries are unlikely to be able to get jobs that provide opportunities to recapture lost income and status. Moreover, the working environment of most of these jobs is completely different from that of a traditional factory environment. For workers used to the social culture, physical conditions, hubbub, and noise of a factory, the transition to working in an office, health care facility, or restaurant is abrupt. The last major transition, from agricultural to manufacturing work, may have been less jolting for many people.

Employment in Manufacturing

While manufacturing as a whole has not created jobs over the past decade and a half, some

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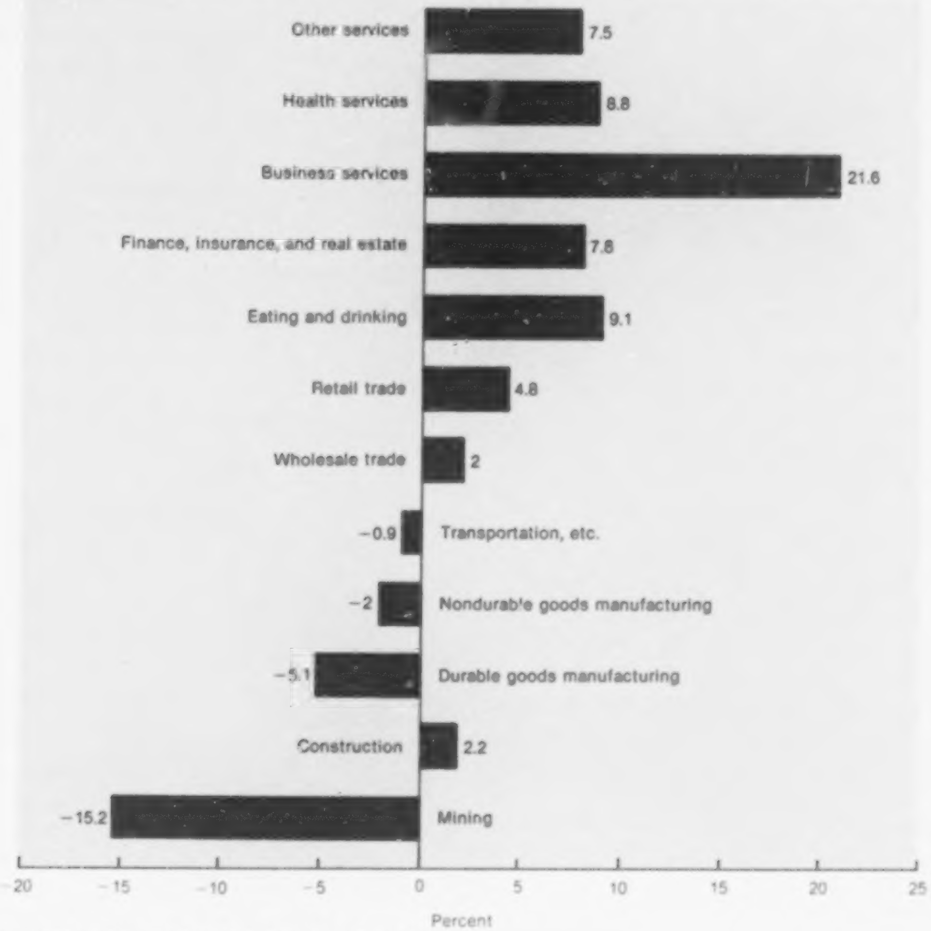
[56] U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*, August 1985, tables B-1 and C-1. OTA calculated the average hourly earnings of production and nonsupervisory workers in the nongovernmental service-producing sector as the weighted average of earnings of workers in five industry groups making up the sector: transportation and public utilities; wholesale trade; retail trade; finance, insurance, and real estate; and services.

[57] Earl F. Mellor, "Weekly Earnings in 1983: A Look at More Than 200 Occupations," *Monthly Labor Review*, January 1985. OTA calculated the $320 as the weighted average of the earnings of operators, fabricators, and laborers ($276), and the earnings of workers in precision production, craft, and repair ($379).

[58] Cited in Lucy Stetson Gorham, "U.S. Industry Employment Trends From 1969 to 1995 and the Implications for Economic Inequality," master's thesis, Department of City Planning, Massachusetts Institute of Technology, June 1984, pp. 20-22.

Figure 4-8.—Rate of Change in Private Nonagricultural Employment, July 1981 to May 1984[a]



[a] Based on seasonally adjusted data; includes only payroll employees

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, establishment survey data

manufacturing sectors have grown while others have declined. The so-called high-technology sectors are often identified as the job-creating sectors of the future, in contrast to mature industries like steel, automobiles, textiles, and apparel, which will probably continue to lose jobs gradually under the most favorable circumstances.

High-technology industry employment varies, depending on how high technology is defined, from 2.5 to 12.6 million (in 1980).[59] Not all high-technology industries are in the manufacturing sector. Under the most liberal definition, only about 62 percent of the 12.6 million work-

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[59] The three definitions used by the BLS are:

1. industries that employ a proportion of technology-oriented workers greater than 1.5 times the average for all industries, or 5.1 percent of total employment;
2. industries whose ratios of R&D expenditures to sales are more than twice the average for all industries, or greater than 6.2 percent; and
3. industries that satisfy criteria concerning both the relative R&D expenditures and the proportion of technology-oriented workers.

For a fuller discussion of these definitions, see U.S. Congress, Office of Technology Assessment, *Technology, Innovation, and Regional Economic Development*, OTA-STI-238 (Washington, DC: U.S. Government Printing Office, July 1984), pp. 17-20.

Table 4-2.—Occupational Distribution of Selected Industries

Industry	Percentages						
	Managers and officers	Professional workers	Technical workers	Service workers	Production and maintenance	Clerical workers	Sales workers
Manufacturing	6.6	6.9	2.9	1.8	68.1	11.5	2.2
Banks, credit	19.0	6.1	0.7	2.2	0.5	70.2	1.2
Securities and commodities brokers	17.2	14.2	1.5	2.4	1.3	44.3	19.0
Insurance, real estate	15.5	10.3	1.2	9.5	8.5	40.9	14.1
Hotels, etc.	6.8	2.0	0.2	65.4	8.0	16.4	1.2
Personal services	11.6	5.1	0.3	35.9	28.0	15.9	3.2
Business services	9.0	12.5	5.7	26.2	14.1	28.7	3.8
Auto repair	14.9	0.9	0.1	1.5	64.9	15.5	2.2
Miscellaneous repair	13.8	2.3	6.2	1.3	57.7	13.8	4.9
Health services	5.9	20.9	17.7	32.6	4.2	18.5	0.1
Legal services	6.7	38.0	0.3	1.5	0.1	53.5	—
Wholesale trade, durables	11.2	5.7	4.2	0.9	27.6	29.1	21.3
Wholesale trade, nondurables	10.2	3.6	0.7	2.0	35.1	28.0	20.5
General merchandise stores	9.2	2.5	0.2	5.8	11.1	24.6	46.5
Food stores	10.4	1.4	0.1	11.1	27.5	32.7	16.7
Eating and drinking	7.6	0.4	—	85.3	1.1	4.2	1.2

SOURCES: U.S. Department of Labor, Bureau of Labor Statistics, "Occupational Employment in Transportation, Communications, Utilities, and Trade," Bulletin 2220 (Washington, DC: U.S. Government Printing Office), December 1984, p. 6; U.S. Department of Labor, Bureau of Labor Statistics, "Occupational Employment in Mining, Construction, Finance, and Services," Bulletin 2186 (Washington, DC: U.S. Government Printing Office), February 1984, p. 5; U.S. Department of Labor, Bureau of Labor Statistics, "Occupational Employment in Manufacturing Industries," Bulletin 2133 (Washington, DC: U.S. Government Printing Office), September 1982, p. 4.

ers in these industries—some 7.7 million employees—worked in the manufacturing sector. Under the most restrictive definition, all 2.5 million high-technology employees worked in manufacturing. Whatever the definition, high-technology employment grew faster than total wage and salary employment between 1972 and 1982. Under the broader definition, employment grew by 20 percent; under the narrower, by nearly 40 percent.[60]

High-technology employment probably will not compensate for lost blue-collar jobs in other manufacturing sectors for two reasons. First, employment in some high-technology industries is increasingly skewed toward managerial and professional occupations, again affording the worker displaced from traditional manufacturing few options. For example, production jobs in the semiconductor industry have been going offshore,[61] leaving the industry in this country with a heavier concentration of managers and professionals. Moreover, high-technology industries account for only 3 to 13 percent of employment (depending on definition), and even rapid growth may not offset losses in other parts of manufacturing, which account for far more jobs.

Second, high-technology manufacturing, like many traditional manufacturing sectors, has problems with foreign competition. In many electronics industries, Japanese and other manufacturers have made inroads into areas of former U.S. strength. In consumer electronics, for example, many U.S. firms succumbed over the last decade to pressure from Japanese, Korean, and Taiwanese manufacturers. Few radios or black-and-white televisions are made in the United States today, and color television manufacture is mostly an assembly operation. No video cassette recorders are made in the United States, and import penetration of home and auto radios and stereo systems was over 76 percent in 1982.[62]

Other electronics sectors, such as semiconductors and computers, are still strong, but have become much more vulnerable to foreign competition. The trade balance in semiconductors fell from a surplus in 1980 to a deficit of nearly $3 million in 1984. The trade surplus in computing equipment fell roughly 15 percent during that time. Employment in both industries has been hurt; employment in computing equipment was down by nearly 32,000 between August of 1984 and August of 1985, with nearly all the losses in production employment. Total employment in the semiconductor industry fell by 7,200 between August 1984 and August 1985; production employment declined by 19,600 (more than offsetting a rise in non-production jobs). Other high-technology sectors are facing problems too. Aircraft manufacture, long a bastion of U.S. manufacturing strength, is facing strong competition from Airbus Industrie of Europe.[63]

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[60] Ibid., pp. 19-23.

[61] John A. Alic, Martha Caldwell Harris, and Robert R. Miller, "Electronics in the World Economy," mimeo, p. 17.

[62] U.S. Congress, Office of Technology Assessment, *International Competitiveness in Electronics*, OTA-ISC-200 (Washington, DC: U.S. Government Printing Office, November 1983), pp. 11-12.

High-technology manufacturers, and U.S. manufacturing in general, have been hurt by unfavorable currency exchange rates. Yet in some high-technology sectors, competitive problems have other causes. Many high-technology sectors still lead in innovation, production costs, and technology over even the most sophisticated foreign rivals. However, without serious attention to such things as quality control, investment in modern capital equipment, research and development, and the design of manufacturing systems that integrate people and machinery in cost-effective ways, the lead could erode.[64]

High-technology industries are certainly a bright spot in the U.S. economy. For instance, while employment in computers is modest compared to the job count in many other industries, it is quite clear that computer technology has created large numbers of jobs and new enterprises throughout the economy. The same is true of telecommunications. What is not clear, however, is whether rapidly changing technology will mean the United States can continue to create enough new jobs to avoid a crisis in the future. While many analysts have concluded from past experience that "technology creates more jobs than it destroys," this is too simplistic a view. Technology does create jobs, but never alone; other factors—e.g., general economic growth; government spending; and changes in world competition, demand, and population—are equally important in affecting employment. It is more accurate to say that technology creates jobs only through advances that can increase demand for existing products or create new demand for new products. Therefore, there is no evidence that technological advance *alone* will continue to stimulate employment. It is not safe to assume that high-technology sectors will rescue the workers displaced from traditional manufacturing sectors of the economy. Few workers displaced from traditional manufacturing, especially unskilled or semiskilled workers, can expect to make easy transitions to high-technology industries. Those who do will probably earn substantially less (if they originally worked in the steel or automobile industries) or little more (if they came from apparel or textile industries) than they made in traditional sectors.

Business Size and Job Creation

It is generally thought that small businesses create more jobs than large ones. As a result, some analysts believe that fostering small business will stimulate job growth. In much of Europe, where problems in creating new jobs have recently been particularly acute, many governments have invested in programs to aid small business, or help individuals to start new businesses. These programs have had a small, but positive, impact on aggregate employment growth, although often not enough to make up job losses from mass layoffs or closures of major employers.[65]

Do small businesses really create more jobs? Will investing in small business spur employment growth? The available information is equivocal, suggesting a need for caution. Evidence on job creation by size of business is thin, but all quantitative studies conclude that small *establishments* are responsible for more than their share of net job creation, when "share" is measured by the proportion of employment in various sizes of establishments. Small establishments—those with fewer than 100 employees—were responsible for over 80 percent of net job creation between 1969 and 1976,[66] and 78 percent between 1978 and 1980.[67] Small establishments employ only about 49 to 54 percent[68] of the private sector labor force.

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[63] "Europe's Airframe Makers Expand Penetration of Transport Market," *Aviation Week and Space Technology*, vol. 122, No. 11, Mar. 18, 1985, pp. 204-212.

[64] See, for example, U.S. Congress, *International Competitiveness in Electronics*, op. cit.; and John W. Wilson, "America's High-Tech Crisis," *Business Week*, Mar. 11, 1985, pp. 56-67.

[65] Graham Todd, *Creating New Jobs in Europe: How Local Initiatives Work*, Special Report No. 165 (London: The Economist Intelligence Unit, April 1984), pp. 10-11.

Establishment data, however, do not tell a complete story. Small businesses are not the same as small establishments. According to Armington and Odle, while " . . . 91 percent of businesses with employees have only a single location . . . the other 9 percent that are multi-location firms employ 62 percent of the private sector work force and consequently have a substantial impact on aggregate measures." Looking at job creation data from the standpoint of firms rather than establishments, the findings change markedly. Small businesses—defined as establishments in *firms* with fewer than 100 employees—employed 36 percent of the labor force and generated 39 percent of net new jobs between 1978 and 1980.[69] Another study reaches a different conclusion: it shows that enterprises with 20 or fewer employees accounted for 38.5 percent of net job creation between 1976 and 1982, although they had only about 20.5 percent of total employees.[70] The seeming contradictions of these studies have not been resolved; the Small Business Administration simply reports that "[t]he 1978-1980 period appears to be an aberration." Whether this is true, or whether the percentage of new jobs created by small businesses varies for identifiable reasons, is unknown. The preponderance of evidence seems to support the view that small firms do indeed create more than their share of new jobs; however, the evidence is not very strong or consistent.

Job creation in the small-business sector is also related to activity in larger enterprises. Many larger businesses increasingly rely on temporary and contract personnel to supplement their own work forces during times of expansion.[71] In part, this is to avoid the costs of hiring (the "social overhead") and firing (including severance pay and services to laid-off workers); the motive is also to maintain stable and good relationships with the permanent work force. As a result, at least some of the job creation of small businesses is dependent on growth in larger businesses. This kind of job growth probably would not be greatly affected by aid to small businesses.

There is some evidence that small establishments account for a disproportionate number of first jobs. By examining first regular civilian jobs of males less than 22 years old, Schiller concluded that small establishments account for 67 percent of initial job attachments, while employing 58 percent of the entire work force.[72] This study does not clearly distinguish between small firms and small establishments, and the kinds of workers studied are too restricted to allow general conclusion. However, it provides suggestive evidence that small establishments account for more hiring of new labor market entrants than large business.

Job growth in small businesses—establishments or firms--is also quite volatile. Birch concludes that:

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[66] David L. Birch, "Who Creates the Jobs?" *The Public Interest*, fall 1981.

[67] Catherine Armington and Marjorie Odle, "Small Business—How Many Jobs?" *The Brookings Review*, vol. 1, No. 2, winter 1982, pp. 14-17.

[68] There are three different databases that relate employment to establishment and business size: the Unemployment Insurance (UI) database, the Dun and Bradstreet Market Identified File (DMI), and County Business Patterns (CBP). CBP data show 54.5 percent of employment in small establishments (with less than 100 employees), UI data show 51 percent of employment in small establishments, and DMI shows 48.4 percent of employment in small establishments. Source: Bruce D. Phillips, Senior Economist, Office of Economic Research, Small Business Administration, "A Comparison of Three Establishment-Based Data Sources, the Dun and Bradstreet Market Identifier File (DMI), County Business Patterns (CBP), and Unemployment Insurance (U.I.) Data, 1977-1978," mimeo draft.

[69] Armington and Odle, op. cit., p. 15.

[70] U.S. Small Business Administration, *The State of Small Business: A Report of the President* (Washington, DC: U.S. Government Printing Office, May 1985), p. 22.

[71] Carey W. English, "Behind Hiring of More Temporary Employees," *U.S. News and World Report*, Feb. 25, 1985, p. 76.

[72] Bradley R. Schiller, " 'Corporate Kidnap' of the Small-Business Employee," *Public Interest*, summer 1983, pp. 72-87. Unfortunately, Schiller does not distinguish "firms" from "establishments."

> The road to future growth is a tortuous one indeed . . . Dynamic, job creating establishments appear to oscillate, or pulsate, constantly. Periods of expansion are the best predictors of future decline, and declining periods are the foundation upon which future business growth is based. Stable firms, those that have somehow isolated themselves from the ups and downs in the world around them, are the most likely to fail in the end . . . Just as failure appears essential to our system, so does instability.[73]

Other studies (Armington and Odle, and Tietz) agree; Tietz notes an even greater degree of volatility than Birch.[74] Moreover, Tietz finds that the bulk of employment growth is concentrated in a small percentage of small establishments. Many small firms are born and die within a very short time; firms that "make it" often grow rapidly. At some point, small successful firms often turn into large ones, some through continued growth, and some by acquisition. Sometimes, successful small firms acquire others, or are acquired by others. In the latter case, some people may lose jobs. While this kind of flexibility appears to be good for the economy, it can be jolting for individuals, for a large number of small businesses fail. Flexibility in business creation, growth, contraction, and death may provide a degree of overall economic stability which is not matched at the individual level. Job security is not a feature of employment in the small-establishment or small-business sector.

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[73] Birch, op. cit., p. 8.

[74] Findings are cited in Richard Greene, "Tracking Job Growth in Private Industry," *Monthly Labor Review*, September 1982.

Chapter 5
National Displaced Worker Programs

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Chapter 5

National Displaced Worker Programs

OVERVIEW AND FINDINGS

Governments in most modern industrial nations have shown a strong interest in helping adult displaced workers train for and find new jobs. In an increasingly competitive world, a dynamic, adaptable, and generally open national economy exacts high costs in labor force shifts. For the affected workers, families, and communities to bear the full brunt of these costs is neither equitable nor, in a democratic country, politically practicable. Assistance to displaced workers is a positive part of a national policy to keep the United States competitive.

In addition, programs that help displaced workers get back on their feet can save public spending on the social safety net, including unemployment insurance, food stamps, Medicaid, and welfare. Assistance to displaced workers may also diminish less tangible social costs—impaired health, family strife, the decline of communities, and the waste of human potential. On the positive side, programs for displaced workers may serve to break bottlenecks by training and supplying workers in demand by growing industries.

The United States has had less consistent, less comprehensive policies on displaced workers than many other industrialized nations, where problems of adjusting to international competition are longer standing. In response to the fears about automation 25 years ago, Federal programs to help displaced workers were adopted for the first time in 1961. As the economy prospered throughout the decade, the focus of employment and training programs soon shifted to disadvantaged workers. Early in the 1980s, the deep recession, combined with aggressive international competition, rapid technological change, and extensive restructuring of many industries, once more brought displaced workers to the center of public attention.

The Job Training Partnership Act

Title III of the Job Training Partnership Act (JTPA) of 1982 was a response to renewed concern about displaced workers. By 1985, over 700 projects were serving displaced workers, or were being planned. The Title III program was supported by Federal funding of $223 million in fiscal year 1985, plus contributions by States from public or private sources to match part of the Federal grants.

In late 1985, the Title III program had been in existence for only about 2 years. At this point, it was premature to make judgments about all aspects of the program's effectiveness. Many States spent a good part of the first 2 years organizing their programs, and in the transition year (the first 9 months of operation, from October 1983 through June 1984), the rate of spending was slow. In that period, the Title III program provided services to 96,100 displaced workers. In the following program year (July 1984 through June 1985), 132,300 newly enrolled displaced workers were served. Those served were probably fewer than 5 percent of the eligible population. It is not certain how many American workers are eligible for JTPA Title III services, but over 3 million adult workers were displaced from their jobs in 1983, and most of them were probably eligible.

Of 177,700 U.S. workers (new enrollees and holdovers) who participated in Title III programs during the 1984 program year, beginning July 1984, 113,600 officially terminated from the program; the rest remained in the program past the end of the reporting year. Of the terminees, 65 percent found jobs. Reemployment wages for those who found jobs averaged about $6 per hour, approximately three-quarters of the average wage for production and nonsupervisory workers in the private sector at the time. In most States, programs were strongly oriented toward prompt placement in new jobs. In accordance with the major emphases in the law, States are in active charge of the program, the Federal role is minor, and the influence of private business is strong—especially in the orientation toward placement, low costs, and marketing of the program with potential employers. The act's requirement for emphasis on training and related employment services, with limits on spending for administrative and support services, has been satisfied.

Whether the program is a sufficient and effective response to the problem of worker displacement is a question still to be answered. In this regard, several issues are of particular interest to policymakers:

- One important issue is whether vocational skills training is getting enough emphasis in Title III programs. For many workers displaced from semiskilled and unskilled manufacturing jobs, the best hope of getting a well-paid new job, either in manufacturing or in a service sector, lies in retraining. Even though, in general, the majority of displaced workers are more interested in getting a new job promptly than in retraining, training is a very important component of a well-run program.

  Reporting on the mix of services offered in Title III projects is not required, and information on the subject is extremely scanty. The available evidence indicates that most projects emphasize job search assistance much more than vocational training. Several factors influence this choice, including the stress placed by program directors and business advisors on quick job placement as a goal and on low costs in achieving it, and the expressed desire of many clients to get back to work as quickly as possible. Figures on spending support the idea that training is a minor component of the Title III program. In the transition year, spending per worker in the program averaged $768, and in the 1984 program year, $895; these figures compare with spending per worker of up to $3,000 in projects that are strongly committed to vocational training, which is usually the most expensive option in displaced worker projects.
- Another concern is the lack of attention in most Title III programs to remedial and brush-up education for displaced workers whose basic skills are inadequate or rusty. Many State program directors, unlike local project staff members, see little need for these services, either because they believe their clients have adequate basic skills or because remedial education is available elsewhere (e.g., in public schools at night). Not all States follow this pattern, however. Remedial education gets considerable attention in States with large numbers of non-English-speaking workers. Also, some individual projects funded by Title III have offered exemplary remedial education services. The emphasis in JTPA programs on prompt job placement and low costs, and the failure of the law to set a goal of improving displaced workers' basic skills, may together discourage Title III projects from offering remedial education.
- A leading concern of State Title III program directors is the need for early warning of plant closures and large layoffs, so that help can be offered to workers before they are out of a job. JTPA allows prelayoff assistance, and some States try to provide it, yet they are often hampered by not knowing in advance when layoffs will occur. Other States are not prepared to react promptly to news of layoffs. Some companies that want to provide timely help to workers they are laying off have sought technical assistance from State Title III programs, but have not received a prompt effective response. A number of States would like to use JTPA funds for "preventive" retraining of active workers to try to avoid displacement. JTPA authorizes services to workers only after they have received notice of termination.
- Another issue is reliable, sufficient funding for the Title III program. Two years after the program officially began, Congress voted to cut Federal Title III fund-

ing by 55 percent. In proposing the cut in early 1985, the Administration cited a slow rate of spending due to lack of demand for extensive vocational retraining, and a large carryover of unspent funds. Several other factors contributed to the States' initial slow rate of spending: the inevitable delays in starting up a major new program and, in many States, a conservative approach in saving funds for contingencies. As States gained more experience with displaced worker programs, many spent at a faster rate, and most had fully obligated their Title III funds by the end of the 1984 program year (June 30, 1985). However, State reports for program year 1984, which became available in fall 1985, showed that the carryover of unspent funds was still large on an aggregated, nationwide basis.

In cutting funds for Title III, Congress expressed no intent to cut the level of program services; both House and Senate Appropriations Committees stated their expectation that the carryover funds, together with the new smaller appropriation, would be enough to maintain the same program level. It appeared, however, that because of differences in rates of spending and carryover funds among States, 23 States would have less money for services to displaced workers in 1986 than their 1985 allocation. States that got an early start in providing services and spent most of their allocated funds might have to cut services. Responding to this concern, Congress directed the Secretary of Labor to give first priority for discretionary Title III funds to States that would otherwise have to cut back services, and to keep Congress advised of the possible need for supplemental funds. What effect the funding changes will have on the stability, quality, and level of services to workers is not yet clear.

- A problem that became apparent as Congress considered fiscal year 1986 appropriations for Title III is that reports on State programs are neither timely nor adequate. The reports are due 6 weeks after the end of the program year (end of June), but are usually not complete until several weeks later. Thus, when Congress is considering the budget for the following year in the spring through the fall, the latest State reports on program activities are several months to more than a year old. Moreover, information in the reports is scanty. The Labor Department requires that States report only the amount of Title III funds spent during the year, numbers of workers served, numbers officially leaving the program, numbers placed in jobs, and a few characteristics of participants. The reports do not include information on obligation of funds, only on spending; nor do they state how many workers are receiving what kind of service (e.g., vocational skills training, remedial education, relocation assistance, job search assistance, and on-the-job training).
- Federal direction and oversight of the JTPA employment and training programs are minimal. While some State officials welcome the noninterventionist policy of the U.S. Department of Labor, others are fearful that, without guidance from the Department, some project services will be disallowed by Federal auditors. Some States have imposed tight regulations and considerable paperwork requirements on Title III projects to avoid trouble with audits later. One Labor Department service that many States would like is more exchange of information about Title III practices in other States, and about their successes and failures in providing services.

Other Federal Programs

Trade Adjustment Assistance (TAA) is a major Federal program open to displaced adult workers who lost their jobs due to foreign competition. Although much reduced from its 1979-80 peak, TAA was still funded at about $70 million per year and served some 30,000 workers annually in 1984-85. For eligible workers, TAA offers extended unemployment benefits, training assistance, and help with relocation to find a new job. Unlike the Title III program, TAA extends income support to workers in approved training, and it provides more generous relocation help than most Title III projects. TAA authority technically expired at the end of 1985, when Congress failed to pass the budget reconciliation bill that proposed a longer term reauthorization of TAA. A continuing resolution was passed, which allowed certified eligible workers to continue to receive relocation and retraining assistance through fiscal year 1986. However, the full TAA program may be revived, as the 99th Congress is expected to give it further consideration in the second session.

The nationwide network of federally funded Employment Service (ES) offices plays a substantial role in serving displaced workers. Most commonly, the local Title III project buys from the local ES office services such as placement or helping clients to learn job search skills. Without the funds from Title III projects, ES offices could not offer displaced workers such services as assessment, job counseling, job development, and referral to suitable training.

Congress has shown special interest in two services that the ES system can provide. First, JTPA, like other employment and training laws before it, calls for the Secretary of Labor to establish a computerized interstate system to pool ES job orders nationwide and match applicants with job openings. The Interstate Job Bank, in operation since 1984, goes some way toward the goal of linking the State ES networks into a national system. However, the bank's coverage is limited to hard-to-fill technical and professional jobs, and it is by no means fully automated. Technologically, the system could be fully automated, but first many State systems would have to be upgraded. The costs of a fully automated interstate job bank have not been carefully estimated.

It may be questioned whether the benefits of fully computerizing the interstate job bank and extending its coverage to lower paid, lower skill jobs would be worth the cost, considering that an interstate job bank is useful only to workers who might want to relocate. However, such a system might encourage the relocation of a broader range of workers; if it proved effective it might also encourage more listings by employers and more applications by well-qualified workers. Information is scanty on both the costs and benefits of a fully computerized nationwide system, or on the intermediate step of upgrading State systems.

JTPA also calls on the Labor Department to help States provide detailed information about local labor markets. The weakest element in local labor market information is data on occupations currently in demand. One reason is that State ES systems do not have the expert staff and funds to analyze information that is currently collected. Cuts in Federal funding in the last few years have led some State ES offices to reduce research and analysis staff. Federal assistance to States for collection of occupational data on a State and substate basis may also be reduced. The Administration opposes Federal spending for labor market information that is not explicitly required by law or strictly related to national labor market information programs.

Non-Federal Programs to Help Displaced Workers

A number of States have set up their own programs to aid displaced workers. A few national collective bargaining agreements have established funds for the same purpose (e.g., the United Auto Workers' agreements with General Motors and Ford for retraining funds). A major element in both the State and private programs is retraining of active workers to avoid displacement. JTPA does not cover this kind of activity. The State and private preventive retraining programs are funded at tens of millions of dollars per year; by far the greater share of training and education of active workers is done by employers, who spend billions per year on these activities.

Some States and communities have also undertaken to help firms that are in danger of going out of business. The point is not only to avoid the costs of displacement for workers and their families, but also to preserve the economic life of communities. In a dynamic economy, some plant closings and labor shifts are inevitable, but not every closing is unavoidable. Key considerations for State governments or communities considering efforts to save threatened firms are: 1) Is there enough time to adopt a corrective strategy? 2) Are there realistic prospects for the firm's profitability that are likely to attract alternative investors? 3) Are management and labor willing to make sacrifices to create a more productive and profitable enterprise? In many cases, plants can be saved only at the cost of some jobs as productivity improves. States and communities can help troubled firms in several ways, including promoting labor-management cooperation; establishing continuing programs, such as rapid response teams, technical consulting services, and flexible financing; and, as needed, helping to find new financing or a new owner.

Labor Policies and Adult Worker Training in the United States and Other Industrial Democracies

Many industrialized nations have adopted labor policies that are designed to deal with employment problems and to improve the contribution of labor to national competitiveness. Among them are programs for the retraining and reemployment of adult displaced workers. Experience with such programs in other industrial democracies may provide useful lessons for the United States, keeping in mind that policies which succeed in other cultures do not always travel well.

An example is Sweden's large and costly labor programs, which account for 2 to 3 percent of the country's gross national product, and generally provide services to 5 or 6 percent of the labor force per year. The major services are wage subsidies, retraining, and public service employment. This combination has helped to keep Swedish unemployment rates below 3.5 percent even in the recession of the 1980s, when unemployment rates in large European countries and in the United States were 10 percent or more. Sweden's inflation rates since 1971 have been about average for European countries, and generally above those in the United States.

A Swedish Government agency operates what is generally considered a well-run adult training program and nationwide employment service. Business and labor are involved at all levels in determining the kind of training needed. Many laid-off workers, especially the less skilled, enter training; while in training they receive stipends roughly equal to unemployment insurance. The Swedish system also provides individualized job-hunting services for workers who do not require training. Rapid response, to avoid long layoffs, is emphasized. Mandatory advance notice of plant closings allows early action to assist displaced workers.

Major drawbacks to the Swedish system, besides its cost, are some untoward effects on equity and efficiency. Established workers are the main beneficiaries of the system, not those just entering the labor force. Also, the system probably depends in part for its success on having immigrant guest workers take less secure jobs. The system may discourage worker mobility, and industry innovation and entrepreneurship.

In Canada, labor policy is a less formal social partnership between business, government, and labor than a number of selective interventions by the national government to correct deficiencies in the private market. Nonetheless, Canadian labor programs are large; in fiscal year 1984, the national government spent $1 billion of its $89 billion budget for adult training programs alone. About 2.3 percent of the labor force took part in government-sponsored training. Training courses are usually lengthy (averaging 1 year) and trainees are eligible for extended unemployment insurance or allowances.

A point of practical interest to U.S. policymakers is the positive example of Canada's Industrial Adjustment Service (IAS). At modest expense to the taxpayer (about $108 per year for every worker served), this small federal agency gives effective reemployment assistance (not including expenditures for retraining) to workers displaced by plant closings. This is accomplished by efforts at the plant level to turn up jobs. In fiscal year 1982-83, the Canadian IAS program served about 36,000 workers displaced in plant closings and large layoffs—equivalent to approximately 350,000 workers in the much larger U.S. labor force. This suggests that more effective delivery of readjustment services to displaced American workers might stimulate higher levels of participation than the 4 or 5 percent currently served by JTPA Title III projects.

Despite Canada's active policies to help displaced workers find jobs and to provide retraining to adults, Canadian unemployment rates have been high relative to those of most industrialized nations in the past dozen years, and were somewhat higher than U.S. rates (an average of 6.8 v. 6.3 percent from 1970 through 1981). Canada was hit very hard by the recession and had not recovered in 1984, when its unemployment rate was still over 11 percent.

THE EVOLUTION OF DISPLACED WORKER PROGRAMS

U.S. displaced worker programs originated in the automation scare of the late 1950s and early 1960s, when unemployment was on the rise and thousands of workers were losing jobs in industries undergoing structural change. The Federal Government, some of the States, private business, and labor unions all became involved in helping displaced workers.

Federal Employment and Training Programs: 1960-83

The first Federal program for retraining and reemployment of displaced adult workers since the Great Depression was established in 1961, under the Area Redevelopment Act (ARA). During his West Virginia travels in the 1960 Presidential campaign, John F. Kennedy pledged Federal assistance to lift the Appalachian region out of its long decline and to help chronically unemployed workers of the area to find jobs. One result of this pledge was the ARA program, funded at $14.5 million and available only to unemployed or underemployed workers in depressed areas. It offered free 16-week training courses and provided allowances equal to unemployment benefits during training. Other Federal programs were combined with this retraining to bolster economic development in depressed areas, especially Appalachia.

The Manpower Development and Training Act (MDTA) of 1962 created a much larger displaced worker program. MDTA was adopted in response to a rising national unemployment rate (approaching 7 percent in 1961) and to growing fears that technological changes were radically and permanently altering American industry, reducing jobs, and displacing midcareer adult workers. Under MDTA, unemployed and underemployed workers could take retraining courses of up to 1 year and draw a weekly allowance equal to unemployment benefits. Originally funded at $100 million a year, the aim of the program was to retrain adults, especially those displaced by technological change.

Within a year or two, the focus of Federal training efforts began to shift. The unemployment rate dropped and fears about automation faded. Public and congressional concern turned from displaced adult workers to the disadvantaged—poorly educated, unskilled workers with unstable work histories, and youths with no job experience at all. Congress amended MDTA in 1963 to allow spending of one-quarter of the funds on training for youths under 22, and money was also provided for literacy training. The following year, President Johnson declared his War on Poverty, proposing new, bigger programs for job training and job creation, but now targeted to disadvantaged young people and unemployed heads of households, many of them welfare recipients.

Throughout the 1960s and 1970s most of the focus remained on disadvantaged workers. The Comprehensive Employment and Training Act (CETA), signed into law by President Nixon in 1973, changed the mechanisms but not the main goal of the program, namely to help people handicapped by poverty, race, age, disability, or limited education to get a job. CETA consolidated nine earlier programs (including MDTA); transferred the responsibility for running them from the Federal Government to 476 prime sponsors, broadly representative local committees acting under the direction of mayors, county officials, or in some cases governors; and added a large new public employment component. As unemployment rose during the 1970s, the CETA program grew from $1.4 billion in 1973 to $10.3 billion in 1979, and public sector employment became much larger than training. By the end of the decade, training accounted for only one-quarter of the money spent on the program. Box 5A briefly describes the results of government-sponsored adult worker training programs of past years—MDTA and the training component of CETA.

Programs to help adult displaced workers did not drop completely out of sight during the later 1960s and 1970s. Most of the programs were quite small and targeted specifically to groups whose jobs might be affected by particular congressional actions. For example, loggers, sawmill workers, and others who might be displaced when Congress established the Redwoods National Park got special benefits in the Redwood Employee Protection Program.[1]

By far the largest of these special programs was Trade Adjustment Assistance. It was established in 1962 to compensate and retrain workers who lost their jobs to foreign competition due to lowered tariffs. TAA reached few workers in the next 12 years because proving that job losses were caused by lowered tariffs and certifying the affected workers was too difficult. In 1974, after a new round of tariff reductions, Congress liberalized TAA, making eligibility easier and extending benefits.

The revised TAA offered a generous benefits package to groups of workers who lost their jobs as a consequence of foreign competition: income maintenance at a higher level and for a longer period than unemployment insurance provided, plus training and relocation assistance. In its first 4 years (fiscal years 1976-79) the revised TAA program cost about $844 million, providing assistance to about 500,000 displaced workers. But in 1980 and 1981, with large layoffs in the auto industry, spending shot up to $3.1 billion. Over 800,000 workers received TAA assistance in those 2 years.

From 1976-81, TAA funds went mainly to income maintenance, with little spent for retraining or other forms of readjustment assistance. Only $43 million of $3.9 billion, or $11 of every $1,000 spent, went for training, out-of-area job search, and relocation. Of the 1.4 million workers eligible for TAA, only 48,000 (3.5 percent) entered training, and 10,000 (fewer than 1 percent) got job search or relocation assistance. Only about one-third of those eligible for training ever heard about it, and the funds for training had to be borrowed from CETA, which had many other groups to serve. Moreover, bureaucratic delays in certifying workers' eligibility were very long. The average worker waited 14 months after layoff before getting his first TAA check, and by that time, half the affected workers were back at work.

Congress undid most of the income maintenance provisions of TAA in 1981. Cash benefits were cut back to the level of unemployment insurance (UI) payments, and were allowed to begin only after UI eligibility was exhausted. The training component of the program was kept alive, and in 1982 Congress earmarked funds for it ($25 million) for the first time.

In the 1978 CETA amendments, Congress had included a small program for displaced workers. As CETA neared its expiration date in 1982 and Congress considered whether to renew it, displacement of experienced adult workers was once again an urgent issue. With the economy in the trough of the deepest recession since the 1930s, with millions of workers on the streets, and with the distinct possibility that many would never return to their old jobs in the mill or on the assembly line, Congress enacted for the first time in 20 years a broad new program to assist displaced workers. It is contained in Title III of the Job Training Partnership Act of 1982, successor to CETA.

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[1] For a description of these special programs, see U.S. Congress, House Committee on Ways and Means, *Federal Provisions for Special Employee Income Protection Programs and the Unemployment Insurance Program*, Committee Print 96-49, Feb. 15, 1980.

Box 5A.—How Well Did Earlier Government Training Programs Work?

Training of adult displaced workers in the 1960s, before job training was drafted into the War on Poverty, appears to have been a sound social investment. In most of these early programs, funded under the Manpower Development Training Act (MDTA), three-quarters or more of the workers trained for new skills were employed after training.[1] Both employment rates and wages of the retrained workers were generally higher than those of similar workers who did not get training. Except in seriously depressed areas, most of the trainees got jobs that used their newly acquired skills. Other benefits, besides better jobs and incomes for the workers, accrued to society from these programs. Trainees left relief rolls, ceased to draw unemployment insurance, and no longer needed a variety of other social programs.

Long-term followup studies, tracking 13,000 participants over 9 years and comparing them with similar workers who did not have the benefit of MDTA training, confirmed the favorable results. One study found lasting good effects for women, but a substantial decay in the earnings impacts for men.[2] A later study, re-analyzing the same data, showed larger favorable effects for all workers, male and female, black and white; and no decay.[3] According to both studies, the payback to the government for spending on the program was remarkably fast. Savings in welfare and other transfer payments were large enough to return at least 25 to 50 percent per annum on the investment, and pay it all back in no more than 2 to 4 years.

In general, the adult displaced workers trained in the early programs were a select group, "the cream of the unemployed."[4] Government-sponsored job training of the later 1960s and the 1970s, directed toward people with serious handicaps in the job market, faced a sterner test. The consensus of recent studies is that government training programs for these disadvantaged workers earned at least a passing grade. Although CETA training did little to raise earnings for the majority of men—especially those who had previously held steady jobs—it is credited with raising earnings substantially for other participants. Women and male workers with little or no recent work experience benefited significantly.[5] Despite the negative image CETA acquired, and despite continuing shifts in the law's mandate and uncertain funding (CETA had 26 separate appropriations in 8 years), CETA achieved modest successes in training.

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[1] Gerald G. Somers, *Retraining the Unemployed* (Madison, WI: The University of Wisconsin Press, 1968).

[2] Orley Ashenfelter, "Estimating the Effects of Training Programs on Earnings," *Review of Economics and Statistics*, February 1978.

[3] Howard S. Bloom, "Estimating the Long-Run Effect of Job Training Programs Using Longitudinal Earnings Data: Ashenfelter's Findings Reconsidered," manuscript (Cambridge MA: Harvard University, John F. Kennedy School of Government, 1982).

[4] Somers, op. cit.

[5] For studies of the impact of CETA training on earnings, see U.S. Congress, Congressional Budget Office, *CETA Training Programs—Do They Work for Adults?* (Washington, DC: Congressional Budget Office, 1982); Westat, Inc., *Continuous Longitudinal Manpower Survey Net Impact Report No. 1, Impact on 1977 Earnings of New FY 1976 CETA Enrollees in Selected Program Activities*, report prepared for the Employment and Training Administration, U.S. Department of Labor (March 1981); Westat, Inc., *Net Impact Report No. 1 (Supplement No. 1): The Impact of CETA on 1978 Earnings: Participants in Selected Program Activities Who Entered CETA During FY 1976*, report to the Employment and Training Administration, U.S. Department of Labor (July 1982). See also Sar A. Levitan and Garth L. Mangum (eds.), *The T in CETA, Local and National Perspectives* (Kalamazoo, MI: The W.E. Upjohn Institute for Employment Research, 1981); Robert Taggart, *A Fisherman's Guide: An Assessment of Training and Remediation Strategies* (Kalamazoo, MI: The W.E. Upjohn Institute for Employment Research, 1981).

The Job Training Partnership Act

JTPA was a product of bipartisan cooperation and compromise in Congress. It retained CETA's primary emphasis on job assistance for the disadvantaged, but with major changes. The new law was designed to support training. Public service employment was discontinued. The law also put direction of job training programs in the hands of State Governors rather than local prime sponsors under supervision of the Department of Labor. In addition, JTPA gave the business community, in the form of Private Industry Councils (PICs), major new responsibilities for designing local programs, identifying local job opportunities, and taking part in administering the programs.

Two other important changes responded to criticisms of CETA. First, income support for trainees was much diminished. Critics had charged that the training allowances under CETA were quite often higher than the wages trainees could earn in paid employment, thus encouraging people to enroll for the wrong reasons. Others argued that many workers simply cannot afford training unless some form of income support is available, even if not as much as CETA provided. In the end, JTPA did not explicitly prohibit income payments to trainees, but did specify that 70 percent of the Federal funds going to JTPA projects must be spent on training and related employment services, leaving no more than 30 percent for administrative costs and support services. A limit of 15 percent was set for administrative expenses. Even though the law does not impose a strict 15 percent limit on support services payments,[2] this level has served as a rough guide to PICs and State and local officials. In the first 2 years of implementation, JTPA projects spent much less than 15 percent on support services.

Finally, JTPA specifically mandates performance standards for evaluating job-training programs, with rewards for success and sanctions for failure. The criteria for success of displaced worker programs are "placement and retention in unsubsidized employment." CETA contained no such explicit statutory requirements for performance.

JTPA's Title III (the section directed to adult displaced workers) focuses, like the rest of the law, on training. But training "and related employment services" are broadly enough defined to include many forms of reemployment assistance, such as counseling and job search services. Relocation assistance may also be provided. Exactly what services are provided, how, by whom, and for whom, is left up to the States. The only restrictions the law imposes on eligibility are that workers receiving benefits must fall into one of the following categories:

1. they have been terminated or laid off or have received notice of layoff, are eligible for unemployment insurance or have exhausted it, and are unlikely to return to their old industry or occupation; or
2. they have been laid off or received notice of layoff in a permanent closing of a plant or facility; or
3. they are long-term unemployed and have little chance of finding a new job in their old occupation or one similar to it in the area where they live; this includes older people whose age creates a barrier to employment.

Photo credit: Downriver Community Conference

Under Title III of the Job Training Partnership Act, displaced workers can receive training for new occupations.

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[2] Title IIA of JTPA, for disadvantaged workers, specifies the conditions under which a waiver may be granted for exceeding the 30-percent limit on supportive and administrative services. Supportive services may include needs-based income payments and services that enable workers to participate in training, such as health care, transportation, and child care. In Title III, for displaced workers, there is a 30-percent limit on spending for supportive services, wages, allowances, stipends, and costs of administration. The limit applies to Federal funds provided by formula to all of the States, but not to discretionary grants made by the Secretary of Labor. In any case, the limit applies to no more than half the total amount of Federal and non-Federal funds available to Title III programs.

Title III accounted for $223 million of the $3.8 billion allotted to JTPA in program year 1984.[3] State contributions from non-Federal sources are required to match about three-quarters of the Federal Title III money. As much as half of the match, however, can be UI payments to participating workers; also, the match does not have to be in cash, but may be in kind (e.g., office space and overhead contributed by community colleges). Altogether, the Title III portion is a relatively small part of the the whole JTPA program. Yet compared with what was previously available in Federal, State, and private programs for displaced workers, it was a huge infusion of new money. Before JTPA, there were a handful of displaced worker projects. By mid-1985, even with the very slow startup under Title III, hundreds of projects were in existence throughout the Nation.

The Employment Service and Unemployment Insurance

This brief history of Federal programs serving adult displaced workers would not be complete without a mention of the Employment Service. Created by Federal law during the Great Depression, it is the oldest government service available to displaced workers, or anyone seeking a job. It was intended to serve the entire Nation with clearinghouses to bring jobseekers together with employers trying to fill job vacancies. Today, the system is a combined Federal-State enterprise, with the Federal Government establishing standards, issuing guidelines, prescribing activities, and providing the funds. The States are in charge of running the ES offices, in 2,400 locations across the country.

In theory, an ES office can do nearly everything a displaced worker project can do, except pay for training. It can counsel clients, help them sharpen job search skills, test them to find out their vocational and educational skills, refer them to training, contact employers to turn up jobs for them (i.e., develop jobs), as well as perform the traditional role of matching jobseekers with requests from employers. In fact, for many reasons—not least that ES staff has been stretched thinner over the years as more duties were laid on and the labor force grew—the ES usually provides very few of these services. In 1981, 7 percent of all jobseekers coming to ES offices received counseling, 5 percent skills testing, 1 percent training referrals, and 12 percent special efforts to develop jobs. Twenty-three percent of applicants were eventually placed in jobs.[4]

A serious drawback to displaced workers using the ES for its most basic and traditional service—finding jobs—is that many of the jobs listed with the ES are not very good. About 38 percent of the job listings flowing into ES offices are in low-pay low-status occupations; these jobs represent only 11 to 15 percent of total U.S. employment.[5] Experienced workers accustomed to middle-class wages may not get much help from the ES in finding a good new job. Moreover, the jobs listed with the ES are few compared with jobs that may actually be open on the "hidden job market," but are neither listed nor advertised. A Federal survey in 1973 showed that only 5.1 percent of people looking for work in the previous year found jobs through their local ES office.[6]

One of the principal extra duties ES offices perform, in addition to job matching, is administering UI benefits. (The fact that most workers call the Employment Service "the unemployment office" is a tribute to the prominence of this task.) The purpose of unemployment insurance, also created by Federal law during the depression, is to provide temporary income replacement for workers who have lost jobs through no fault of their own.

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[3] Federal funds under JTPA are provided to States in program years lasting from July 1 to the following June 30, rather than in Federal fiscal years from October 1 to September 30.

[4] U.S. Department of Labor, *Employment and Training Report of the President* (Washington, DC: U.S. Government Printing Office, 1982). These figures, for fiscal year 1981, are the most recent published on ES activities. The President's Employment and Training Report has not been published since 1982.

[5] Nearly half the job orders filled within 1-day by ES offices are for these occupations. They include domestic worker, restaurant worker, janitor, farm worker, unskilled construction laborer, and service station attendant. See U.S. Department of Labor, Employment and Training Administration, *The Public Employment Service and Help Wanted Ads* (Washington, DC: U.S. Government Printing Office, 1975), pp. 68-70.

[6] By comparison, 34.9 percent were placed through direct application to employers, 26.2 percent through word-of-mouth information from friends and relatives, 13.5 percent through newspaper ads, 5.6 percent through private employment agencies, and the remainder by various means. See U.S. Department of Labor, Bureau of Labor Statistics, *Jobseeking Methods Used by American Workers*, Bulletin 1886 (Washington, DC: U.S. Government Printing Office, 1975), p. 7.

The UI system covers 97 percent of wage and salary workers, although only about 30 to 50 percent of unemployed workers have actually collected benefits in recent years. The rest were ineligible because they had been unemployed so long that they exhausted their benefits, or because they had never worked, or had not worked long enough to qualify, or had left their jobs voluntarily. The proportion of unemployed workers eligible for UI in the United States is low compared with other industrialized countries. For example, in August 1984, Sweden, West Germany, and Japan compensated over 60 percent of their unemployed, while the comparable figure in the United States was 31 percent.[7]

Regular UI benefits last 26 weeks. The permanent Extended Benefits program, the costs of which are shared equally by the Federal Government and by the States, can provide another 13 weeks of coverage when the insured unemployment rate in a State is high;[8] the triggers are high enough that not many States qualified throughout the entire 1982-83 recession. In January 1985 only Alaska and Puerto Rico were eligible. The temporary Federal Supplemental Compensation (FSC) program, authorized by Congress for September 1982 through March 1985 and phased out thereafter, underwrote UI extensions of 8 to 14 weeks in all States and was paid for entirely by Federal funds. Some displaced workers covered by union contracts can also collect supplementary unemployment benefits (SUBs); for the most senior workers, SUBs together with UI may replace as much as 95 percent of earnings and last as long as 2 years.

The two main objectives of UI are: 1) to provide a cushion for unemployed workers between jobs, and 2) to help stabilize the economy in recessions. For displaced workers who have little hope of ever returning to their old jobs, UI can serve another purpose as well: provide a source of income while the workers learn job search skills or retrain for a new occupation. However, the relatively brief duration of UI, the low level of compensation in some States, and the difficulty of collecting it during retraining in some States and some circumstances all make it a somewhat uncertain source of income for displaced workers who choose training and education.

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[7] For a complete description of the UI system, see U.S. Congress, House Committee on Ways and Means, *Background Material and Data on Programs Within the Jurisdiction of the Committee on Ways and Means*, Committee Print 99-2, Feb. 22, 1985.

[8] The insured unemployment rate in a State is the percent of workers covered by unemployment compensation who are collecting benefits. This rate has been substantially lower than the total unemployment rate in recent years, reflecting the fact that half or fewer of unemployed workers were collecting benefits. In 1983, when the civilian unemployment rate averaged 10.1 percent, the insured unemployment rate was 4.3 percent. The comparable figures for 1984 were 7.8 and 2.9 percent. In 1985, in most States, the Extended Benefit program was activated if the current 13-week average insured unemployment rate was 6 percent or above. Some States with high total unemployment rates did not qualify for the program because their insured unemployment rates were much lower.

FEDERAL DISPLACED WORKER PROGRAMS OF THE 1980s

By 1985, displaced worker projects were numerous and diverse. Delays in gearing up the new JTPA Title III program were common, but even so, more than 700 project sites existed in 1985, either providing services or planning to do so.[9]

Status of Title III Programs

Participation

In the first 9 months of the Title III program's existence—the transition year from October 1983 through June 1984—some 96,100 displaced workers signed up for services; in the following program year, July 1984 through June 1985,

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[9] U.S. Congress, General Accounting Office, unpublished information.

177,700 workers were served, including 132,200 who were newly enrolled during the year. How many of the workers eligible for services are taking part in Title III programs is not certain, but it appears that participation is below 5 percent. In calendar year 1983, 3.3 million adult workers lost their jobs because of plant closings or relocations, abolition of positions or shifts, or "slack work."[10] Some of the job losses due to slack work may have been cyclical, but most of the 3.3 million job losers probably would fit the definition of displaced workers that the States generally use to determine eligibility for Title III programs.[11] Taking 3 million as a rough estimate of eligible displaced workers in 1983, about 4 percent participated.

Of the workers terminating from Title III programs by June 30, 1985 (that is, officially leaving the program by that date), 65 percent were male, 70 percent were white, 80 percent were high school graduates, and 94 percent were over 22 years old. Minority workers were overrepresented in Title III projects. They accounted for 30 percent of participants, but only 14 percent of all displaced workers (following the Bureau of Labor Statistics definition) from 1979 to 1983 (see table 5-1 and refer to ch. 3).

Outcomes

Of the 177,700 displaced workers taking part in Title III programs in program year 1984, 113,600 were terminees at the end of June 1985 (the rest remained in the program past that date). Of the terminees, 74,200 (65 percent) were reported as having "entered employment."[12] This entered employment rate, achieved in a time of economic stability and moderate growth, is comparable with the placement rates of the MDTA programs for adult workers in the 1960s.[13]

Table 5-1.—Enrollments, Outcomes, and Selected Characteristics of Terminees, JTPA Title III Program, October 1983-June 1985

	October 1983-June 1984	July 1984-June 1985
New enrollments	96,100	132,000
Terminations	50,500	113,600
On board at end of period	45,600	64,100
Entered employment:		
Number	36,500	74,200
Percentage of terminations	72%	65%
Selected characteristics of terminees:		
Male	68%	62%
Minority	30	30
22 years and older	95	94
High school graduate	78	80

NOTE: Figures are for 50 States, Puerto Rico, and Territories.

SOURCE: U.S. Department of Labor, Employment and Training Administration, "Highlights of JTPA Program Performance for Titles IIA and III During the JTPA Transition Year (October 1983-June 1984)," November 1984, and "Highlights of JTPA Program Performance for Titles IIA and III During the JTPA Program Year 1984 (July 1984-June 1985).

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[10] Unpublished information from the U.S. Department of Labor, Bureau of Labor Statistics (BLS), based on the survey of displaced workers described in Paul O. Flaim and Ellen Sehgal, "Displaced Workers of 1979-83: How Well Have They Fared?" *Monthly Labor Review*, June 1985. The figure of 3.3 million includes all adult workers who lost jobs because of plant closings and employment cutbacks, regardless of tenure on the job. According to the BLS definition of displacement, which includes tenure of 3 years on the job lost, about 1.5 million workers were displaced in 1983. The BLS definition is more restrictive than the definition of eligibility used by most States.

[11] See the section entitled Eligibility, this chapter, for a discussion of States' definitions of workers eligible for Title III services.

[12] U.S. Department of Labor, *Highlights of JTPA Program Performance for Titles IIA and III During the JTPA Program Year 1984* (Washington, DC: Department of Labor, November 1985). The other major source for data in this section was an OTA survey of officials of State Title III programs. OTA conducted the survey by telephone from November 1984 through February 1985 and received information from 49 of the 50 States. Not all States were able to supply all the information requested. Despite some inconsistencies in the reporting and the incomplete data, the telephone survey yielded information not available elsewhere about the early implementation of Title III programs.

[13] Placement rates for displaced workers in MDTA projects were generally about 70 percent in the 1960s, also a relatively prosperous period. See Gerald G. Somers, *Retraining the Unemployed* (Madison, WI: The University of Wisconsin Press, 1968).

Table 5-2 shows by State the number of displaced workers enrolled in Title III projects during the transition year, the entered employment rates for those who terminated, and wages on the old job and the new one (where these data were available). Twenty-nine States reported entered employment rates above the national average, which was 72 percent in the transition year; 10 States claimed entered employment rates of 90 percent or above.

Table 5-2.—Enrollment and Outcomes in JTPA Title III Programs by State, October 1983-June 1984

State	Enrollment	Total terminated	Entered employment rate[a]	Average hourly wage	
				Old job	New job
Alabama	2,713	1,538	78%	$ 5.15	$4.68
Alaska	0	0	0	NA	NA
Arizona	1,554	484	91	10.46	8.81
Arkansas	2,762	1,269	88	NA	NA
California	8,839	5,031	73	8.02	8.53
Colorado	286	256	90	7.00-20.00	6.50-10.00
Connecticut	527	386	89	7.23	7.46
Delaware	285	112	90	NA	NA
Florida	1,139	730	82	NA	4.20
Georgia	630	41	76	5.42	5.03
Hawaii	564	345	73	4.91	4.94
Idaho	228	136	77	NA	8.13
Illinois	7,567	3,051	65	NA	6.61
Indiana	3,628	975	81	NA	NA
Iowa	3,958	2,447	51	7.88	6.69
Kansas	698	376	89	6.11	5.64
Kentucky	828	291	59	NA	NA
Louisiana	361	309	60	NA	NA
Maine	246	126	94	NA	5.00
Maryland	2,406	1,250	66	NA	NA
Massachusetts	1,127	532	87	4.00-12.00	6.00
Michigan	3,524	1,737	95	NA	9.47
Minnesota	2,840	1,740	63	NA	6.25-7.00
Mississippi	1,894	1,242	71	4.44	4.18
Missouri	5,778	5,041	81	7.53	7.93
Montana	1,199	947	78	10.00	7.92
Nebraska	473	266	46	6.00	5.58
Nevada	1,478	848	66	6.84	5.78
New Hampshire	403	227	90	8.50	6.00
New Jersey	1,979	529	71	NA	NA
New Mexico	102	54	30	14.00-15.00	NA
New York	1,144	665	68	5.78	6.19
North Carolina	3,691	1,166	96	4.53-6.14	4.10-4.88
North Dakota	102	29	38	5.34	4.87
Ohio	4,699	2,256	74	NA	5.35
Oklahoma	166	62	53	3.00	5.00
Oregon	1,690	1,016	89	NA	6.14
Pennsylvania	5,875	4,135	49	7.11	8.80
Rhode Island	608	438	77	5.00-6.50	4.50-5.00
South Carolina	1,718	798	67	4.60	4.73
South Dakota	25	10	100	3.72	5.14
Tennessee	599	339	66	5.28	4.94
Texas	2,227	1,352	67	NA	NA
Utah	434	202	71	7.26	6.88
Vermont	94	39	85	4.60	5.54
Virginia	6,778	3,400	73	NA	3.87
Washington	2,293	1,124	90	NA	NA
West Virginia	1,385	876	89	6.24	7.71
Wisconsin	3,859	1,497	91	7.81	6.33
Wyoming	171	133	29	7.55	7.32

NA—Not available.

[a] The entered employment rate is the percentage of clients terminating from Title III programs who found jobs.

SOURCES: For data on enrollment, total terminated, and entered employment rates (except for Colorado), U.S. Department of Labor, Employment and Training Administration, unpublished data. For average hourly wages on old and new jobs, OTA telephone survey. The OTA survey was also the source for total terminated and entered employment rates for Colorado. At the time Colorado reported to the Labor Department (June 30, 1984), no participants in the State's Title III program had yet found jobs. At the time of the OTA survey (from fall 1984 through winter 1985), 90 percent of terminees had entered employment.

The term "entered employment" may be somewhat misleading as a measure of placement results of the programs. Since it is based only on those who terminated from the programs, it is higher than and not comparable with placement figures based on all participants in a program. (MDTA projects reported on this basis, showing placements as a percentage of all who enrolled; so did the national dislocated worker demonstration projects of 1982 and 1983, described in ch. 6.) In a new program, entered employment rates may temporarily overstate favorable outcomes, since the best qualified participants may find jobs first, and thus leave the project first. The entered employment rate for program year 1984 did in fact decline to 65 percent, from 72 percent in the transition year. In addition, anecdotal evidence suggests that some projects, trying to show good placement results, do not even list clients as enrolled until they are fairly certain the client will be placed.

Also, entered employment rates include recalls to old jobs as well as placement in new jobs. This helps explain Michigan's remarkably high reemployment rate in the transition year. The State's biggest Title III project at that time was the Pontiac Retraining and Employment Program, serving nearly 2,200 auto workers who had long been on layoff from General Motors plants. When auto manufacture picked up in 1984, most of these workers were recalled, and the project showed an entered employment rate of 93 percent. The recalls also shed light on Michigan's reported average reemployment wage of $9.47, the highest reported by any State for the transition year (table 5-2).

Not all States with high reemployment rates had the same experience as Michigan. Arizona, for example, reported a 91 percent entered employment rate, but it was not due to recalls. Sixty percent of the displaced workers served by Arizona's Title III projects had been connected with the copper industry, which was depressed in the mid-1980s and was not recalling many workers. Other Arizona clients, from a variety of manufacturing industries, also got new jobs, not recalls.

There may also be special reasons why some States show extremely low reemployment rates. New Mexico, for example, had just begun its displaced worker program at the end of the transition year; the State's entered employment rate of 30 percent was based on only 102 enrollees and probably is not representative.

The earnings data reported by States show only moderate drops in wages for the displaced workers who were reemployed with the assistance of Title III projects. Of the 30 States reporting average old and new wages of their clients, 19 reported lower reemployment wages.[14] Six States reported average wage losses of as much as 20 percent. Nine States reported higher average wages on the new jobs; four showed increases of 20 percent or more. In two States, the new average wage was nearly identical with the old. On the whole, reemployment wages were modest. According to a Labor Department survey of a sample of Title III projects, the average for participants finding new jobs by March 1985 was $6.15 per hour.[15] The average private sector wage was then $8.52 per hour.

Funding and Spending

JTPA provides that Federal grants for displaced worker programs may be given to States in two ways: by formula, or at the discretion of the Secretary of Labor. Formula grants are allocated to each State in accordance with its relative share of all unemployed workers in the country, its share of "excess" unemployed workers ("excess" being defined as more than 4.5 percent of the civilian labor force), and its relative share of people unemployed longer than 15 weeks. At least three-quarters of all JTPA Title III grant money must be allotted to the States by formula grants and, except where unemployment is high, the States must match the grants dollar for dollar, in cash or in kind, from public or private funds. Up to one-quarter of the Title III money can be reserved for the Secretary of Labor's discretionary grants, which go to benefit people affected by mass layoffs, natural disasters, or Federal Government actions (e.g., relocation of Federal facilities), or to people who live in areas of high unemployment or in designated enterprise zones. No State match is required for the discretionary grants.

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[14] OTA telephone survey.

[15] U.S. Department of Labor, Employment and Training Administration, Division of Performance Management and Evaluation, *Summary of JTLS Data for JTPA Title IIA and III Enrollments and Terminations During January-March 1985* (Washington, DC: Department of Labor, August 1985). The report includes data for Title III programs for July 1984-March 1985.

In the 21-month startup period for JTPA programs, October 1982 through June 1984, the States received about $201 million of Federal money to support displaced worker projects. For several reasons, spending for the new Title III program started up rather slowly. For the first 12 months of that period (fiscal year 1983), displaced worker projects could apply for JTPA grant money, but State Title III programs had not yet begun. The projects that received Federal funds during that time were mostly ones already operating, such as six demonstration displaced worker projects that were originally funded by CETA and other Labor Department funds.

In October 1983, the JTPA program officially began. States began to implement both their Title IIA programs (for disadvantaged workers) and Title III programs (for displaced workers). Whereas Title IIA was in some respects a continuation of CETA, with experience behind it, Title III was brand new. Many States did not begin serving displaced workers until nearly the end of the transition year. By June 30, 1984, States had spent $74 million, about 37 percent, of the $201 million. More was in the pipeline, however. A survey of 20 States showed that they had obligated over 97 percent of their Title III funds for the year.[16]

At the end of program year 1984 (June 30, 1985), the carryover of unspent Title III funds was still larger—about $184.5 million—despite the fact that the pace of spending had picked up. During the year, States had $343.5 million in Federal Title III money available for spending (this included funds carried over from previous years plus new appropriations). Taken altogether, the States spent $159 million, or about 46 percent of the available funds. In a telephone survey by the National Governors' Association (NGA), 20 States reported on obligations as well as spending of their Title III funds. They had fully obligated their formula-funded grants, and had obligated 89 percent of all available money (formula and discretionary). States also reported to NGA that they had spent 71 percent of their formula allocations, and 31 percent of discretionary grants.[17]

Location and Operation of Projects

Because of the flexibility JTPA affords, the 700-odd current displaced worker projects vary greatly, ranging from projects centered around a single plant closing to services distributed throughout the State in local offices, available to any displaced worker who walks in. Operators of the projects are equally diverse. JTPA gives control of displaced worker programs to the States; in all but seven the Governor or State agencies kept control of the Title III program instead of turning it over to local entities, the Service Delivery Areas (SDAs).[18] Some States designated existing agencies (often State Employment Security Agencies, which operate the ES system) or a consortium of agencies (often including the State departments of labor, education, and economic development) to deliver displaced worker services statewide. More commonly, States decided that their existing agencies lacked the capacity to run the new projects, and instead appointed a State official to choose contract operators through competitive bids.[19] The result is a melange of project operators, including State agencies, local governments, community colleges, vocational technical schools, SDAs, PICs, companies, unions, and community-based organizations.

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[16] Robert F. Cook, et al., *Transition Year Implementation of the Job Training Partnership Act*, report prepared for the U.S. Department of Labor, Employment and Training Administration (Rockville, MD: Westat, Inc., 1985).

[17] National Governors' Association, "Background Information Regarding JTPA Title III Funding," survey summary attached to memorandum entitled *Legisline* (Washington, DC: National Governors' Association, October 1985).

[18] SDAs represent much the same kind of local governmental bodies as prime sponsors under CETA. Under JTPA, a good deal of authority over the job training programs for disadvantaged workers (Title IIA) remains with the SDAs and their associated PICs. Title III is different: States can keep full control of displaced worker programs if they wish to.

Illinois, for example, established a network of 23 centers for displaced workers, mostly in community colleges, but a few run by such operators as a county agency, a city agency, a union council of building trades, and a community-based organization. The Illinois Department of Commerce and Community Affairs, which is in charge of the State's program, selected areas of high unemployment and economic distress in which to locate the centers.

Wisconsin has a different mix. In several counties, the local ES offices dispense a broad array of services to all eligible displaced workers. Other projects are targeted solely to workers displaced by technological changes in particular plants; they offer retraining to equip the workers for jobs that depend on the new technologies.

Some States are concentrating on economic development in using their JTPA funds, offering customized training to attract new businesses, or providing wage subsidies to employers in the form of 50-percent payment of on-the-job training expenses. In these States, the agencies responsible for economic development are likely to take a leading role in the planning, and sometimes the management, of Title III programs.

Service Mix

The different kinds of services that displaced worker projects customarily offer are briefly outlined in box 5B, with a rough indication of their costs. Reflecting different local needs and the different approaches that States have taken, projects vary widely in the mix and range of services they offer. In Maine, for example, the Franklin County Community Action Council operated a full-service project for workers displaced from two shoe factories, beginning with pre-layoff services. Workers received counseling, prevocational competency training (i.e., basic literacy and math), skills training, job development, support services, and relocation assistance. Other projects provide much more limited options. For instance, where States are using Title III programs for economic development, displaced worker projects tend to feature customized training or on-the-job training. Some of the projects in several States (e.g., North Carolina, Rhode Island, and Tennessee) offer only these services.

The mix of services now offered in all Title III projects is difficult to determine. The Department of Labor does not require reports on the service mix, although it does collect information on the subject from time to time on a study or sample basis. Nor do the States, which usually defer decisions on the service mix to local project directors, have very precise information on the number of participants receiving various services or on the amount of funding devoted to each. Discussion of issues related to the service mix in Title III projects in 1984 and 1985 appears in the next section of this chapter.

Issues in Implementing JTPA Title III

It is premature to make definitive judgments about the sufficiency and effectiveness of the JTPA Title III program in responding to the problems of worker displacement. First, the program is still young. Most States did not even begin to organize their Title III programs until well into the transition year, which ended in June 1984. Second, information about the make-up and outcome of the programs is extremely scanty. The reports States are required to submit to the Department of Labor on the operation of their programs are brief and infrequent; they are submitted only once a year

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[19] As of 1984, 17 States had chosen to operate statewide programs; 16 used State agencies and 1 contracted with the AFL-CIO employment and training unit to run the program statewide. Thirty-two States used requests for proposals to select contractors for individual projects. Seven turned JTPA funds over to SDAs. (These numbers add to more than 50, because some States used more than one method of allocating JTPA resources.) See Wayne M. Turnage, et al., *The Organiztion of Title II of the Job Training Partnership Act in 50 States*, report to the U.S. Department of Labor, Employment and Training Administration (Rockville, MD: Westat, Inc., 1984).

Box 5B.—Major Types of Service Offered in Displaced Worker Programs

Once displaced workers are enrolled in a reemployment-retraining project, they may be offered different kinds of services, depending in part on their individual abilities and interests, but also in part on what the project has to offer. Not all projects offer a full range of services. The brief descriptions below cover the major services offered by a full-range project, at the point where workers are already enrolled and have been assessed for their skills, interests, background, and abilities. For a discussion and evaluation of these services, see chapter 6.

Job Search Assistance.—This may include both training for the individual worker in how to look for a job effectively and assistance from the project in finding a job. Training in job search skills—assessing one's own skills and experience, producing a resume, practicing interviews, identifying potential employers—is often done in groups, in 1- to 5-day workshops. In addition, some projects have staff job developers, who look for job openings that are not publicly listed in addition to compiling job listings from newspapers and the Employment Service. Job developers may also match applicants with job openings, sometimes using an automated job-matching system. Many projects have a resource center where clients can find job listings, make telephone calls to employers, and get encouragement and job counseling from project staff.

Most displaced worker projects strongly emphasize job search assistance. Some require every participant to take a job search skills workshop as a first step in the program. Some require clients to undertake a few weeks of job search before becoming eligible for training of any kind. Also, workers who take training may return to the project afterward for help in finding a job. Job search assistance is usually less expensive than other major services displaced worker projects offer; four demonstration projects in 1982-83 reported the cost of job search assistance alone as ranging from about $400 to $1,400 per participant.

Vocational Skills Training in Institutions.—Workers who need training in a new skill to get a suitable job and who have the requisite background may be offered formal courses in vocational schools, community colleges, or private institutions. Workers may sign up for existing courses, but often a project will develop special courses open only to their clients. Typically, in projects that are strongly committed to training, one-fifth to one-third of clients may enroll; the proportion may be higher in the trough of a business cycle when few jobs are to be had. Four demonstration projects reported costs of about $800 to $3,500 per participant for classroom vocational training in 1982-83.

On-the-Job Training.—Workers who possess general work skills but need to learn the skills required for a specific job may be offered on-the-job training (OJT). The displaced worker project pays a portion of the trainee's wage (usually one-half) for a limited time (usually 3 to 6 months), after which the employer is expected to keep the worker on. Many projects regard OJT as more a placement tool than as training in a transferable skill. Essentially, OJT compensates employers for the cost of training workers in skills specifically needed in their firms, and for the lower productivity of workers in training. Costs of OJT in four demonstration projects ran from about $1,000 to $2,500 per participant.

Remedial Education.—A substantial minority of displaced workers—20 percent or more of the participants in some projects—lack basic reading and math skills, and thus are seriously handicapped in finding a new job. A few projects have developed effective remedial education courses for their clients, achieving high rates of participation. Costs to these projects for remedial education courses averaged $100 to $250 per participant. Public school systems and Federal grants absorbed a major share of the costs, as they generally do for adult basic and remedial education; the projects paid for extras.

Relocation Assistance.— This may include gathering information about jobs and living conditions in other communities; referral to prospective employers out of the area; defraying the costs of travel for a job interview; and cash assistance with the costs of moving. Publicly funded displaced worker projects rarely if ever reimburse all the relocation costs to workers who decide to move. (Full costs might include, for ex-

ample, substantial losses on homes owned in the old community, or higher home prices and mortgage loan rates in the new community.) Under the Trade Adjustment Assistance program, for instance, workers may recover up to $1,600: $800 for out-of-area job search expenses and $800 for moving expenses. State Title III programs under the Job Training Partnership Act set varying limits for relocation assistance; one State that encourages relocation (Arizona) limits reimbursement to $650 per worker.

as of the end of June and contain only minimal information on program activities. Supplementary studies sponsored or conducted by the Labor Department add some information to the annual reports, and OTA has collected some additional data from States, but the sum of information on how the Title III program is progressing remains quite incomplete.

A few major points have emerged. The Title III program, as noted above, served quite a small number (probably no more than 5 percent) of the eligible workers in the transition year. The number of workers served in the 1984 program year rose slightly, but estimates of the eligible population are not available for any year after 1983. The reasons for the low participation are not clear—whether it was due to a slow startup of the program, or whether workers did not know about Title III services, or thought they did not need them, or thought the services were not effective is unknown. The contrast with neighboring Canada in numbers of displaced workers served by a national program is considerable. As described later in this chapter, Canada's 20-year-old Industrial Adjustment Service brings reemployment and readjustment services to workers into plants hit by closings or large layoffs, usually before the layoffs begin. In fiscal year 1982-83, about 36,000 Canadian workers received these services; this translates to about 350,000 American workers, since the U.S. work force is nearly 10 times as large as Canada's. In the 1983-84 transition year, JTPA Title III programs in the United States served the annual equivalent of about 128,000 displaced workers.

A second point is that the Title III programs strongly emphasize prompt placement in a new job, with retraining playing a relatively minor role. Several factors influence this choice, including the stress placed by program directors and business advisors on quick placement as a goal, the low cost of this strategy, and the expressed desire of many displaced workers to get back to work as soon as possible. Data on how many workers are receiving training in new or upgraded vocational skills are fragmentary, but overall spending figures for the Title III program indicate that training is not a very prominent feature. Vocational skills training is relatively expensive, often the most costly choice in displaced worker projects. Individual projects that are strongly committed to retraining spend about $2,000 to $3,000 per worker. In the Title III program during the transition year, the Federal share of spending was $768 per worker, and in program year 1984, $895 per worker.[20]

Third, in several important respects, the Title III program is working in accordance with major emphases in the law. States are in overall charge of the programs, and the Federal role is minor. The influence of private business is strong, especially in the local PICs. Sixty percent of the PICs are reported to have a primary or dominant role in local policymaking, and another 18 percent are characterized as equal to local officials in importance. The business influence is felt in several ways, including an orientation toward placement, low costs, and marketing the program for greater credibility with employers.[21] The act's requirement for

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[20] Although States are required to match about three-quarters of Federal Title III grants from non-Federal sources, a large part of the match comes from UI payments or in-kind contributions from State, local, and private sources. Thus it is difficult to estimate the cash value of non-Federal contributions to the Title III programs.

[21] Cook, et al., op. cit., pp. 12-13; Gary Walker, Hilary Feldstein, and Katherine Solow, *An Independent Sector Assessment of the Job Training Partnership Act, Phase II: Initial Implementation* (New York: Grinker, Walker Associates, 1985); U.S. Senate, Committee on Labor and Human Resources, *Oversight—Job Training Partnership Act*, hearing before the Subcommittee on Em-

Photo credits: California Employment Training Panel

Retraining offers many displaced workers their best opportunity to get a new job with good pay and opportunities for advancement. Some training courses are in high-technology occupations (cable television, left) and some in traditional ones (cabinetmaking, right).

emphasis on training and related employment services, rather than support services and administration, has so far been satisfied. In the transition year, Title III projects spent 17 percent for administration and only 6 percent for supportive services; in program year 1984, 16 percent went to costs of administration and 7 percent to supportive services.[22]

These achievements in carrying out major intentions of the law are accompanied by some concerns. The emphasis on rapid placement of participants in jobs and low program costs may tend to skew the service mix so that the individual needs of some participants are not met—such needs as training in new vocational skills and improvement of basic reading and math skills. Questions have been raised about whether the Federal hands-off approach has gone so far that States lack adequate information and technical assistance. Other issues arose with the 55 percent budget cut for the Title III program for fiscal year 1986. The discussion below considers issues such as these, concentrating on those of particular interest to Congress and other policymakers.

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ployment and Productivity, 98th Cong., 2d sess. (Washington, DC: U.S. Government Printing Office, 1984) and *Preliminary Oversight on the Job Training Partnership Act*, report prepared by the Subcommittee on Employment and Productivity (Washington, DC: U.S. Government Printing Office, 1984).

[22] U.S. Department of Labor, *Highlights of JTPA Program Performance During the JTPA Transition Year* (Washington, DC: Department of Labor, 1984); and U.S. Department of Labor, *Highlights of JTPA Program Performance During Program Year 1984* op. cit, 1984.

Service Mix

On the basis of overall program spending figures, it appears that retraining has not so far been a large component of the Title III program. The question arises whether the program emphasis on high placements and low costs might bias the mix of services offered to displaced workers. Does the program create incentives to pay too much attention to short-term outcomes and too little to the long-term needs of the individual worker? In particular, is skills training slighted simply because it costs more than job search assistance? Is on-the-job training (OJT) oversold because it virtually guarantees high placement rates, at least for one day after placement when the results are recorded? Are needs for remedial or brush-up courses in reading and math put aside, because these courses do not bring immediate payoffs in low-cost placements? Answers to these questions are not entirely clear, but a combination of factors, including the program stress on placements and low costs, and also client desires, influence the service mix in Title III projects.

The quantitative information available on the Title III service mix is not only limited, but may be misleading. In a survey of selected Title III projects, the U.S. Department of Labor found that 31 percent of clients are initially assigned to job search assistance, 25 percent to classroom training, 24 percent to on-the-job training, and 20 percent to "other services," which include assessment, vocational or personal counseling, or "pre-employment skills" services. This breakdown very likely understates the number of participants receiving job search assistance, since it reflects only the client's initial assignment and does not include job search services offered later to those who completed classroom training or other services.[23] In view of the low overall per capita spending for the Title III program in the transition year and program year 1984, the figures may also overestimate those receiving classroom training. The definition of classroom training used in the Labor Department survey specified that it includes basic education, skills training, or a combination of the two, that it is usually conducted in a school-like setting, and that it provides the academic and/or technical competence required for a particular type of job.

In response to the OTA telephone survey, State Title III managers emphasized their uncertainty about the service mix their clients were receiving, but some did offer estimates. Table 5-3 shows the results for the four most frequently mentioned services: counseling, job search training, on-the-job training, and vocational skills training in schools and institutions.[24] Of the States that replied, half or more reported that at least 50 percent of participants in Title III projects received counseling and job search training. Most of the responding States said that fewer than 50 percent of clients received on-the-job training and fewer than 25 percent got vocational skills training in institutions.

A contract study for the Labor Department, looking at 23 local displaced worker projects run by Service Delivery Areas, also found an emphasis on job search skills training.[25] More than half the projects concentrated on training in such techniques as resume writing, methods for locating employment, and group job-finding efforts (job clubs). Some projects supplemented these activities with counseling and referral services. The study observed: "Project operators believe Title III participants need job search instruction more than institutional training." Seven projects required clients to attend job search training classes before they were eligible for any form of skills training. Five projects provided only assessment of clients' skills and experience, in addition to job search assistance.

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[23] U.S. Department of Labor, *Summary of JTLS Data for JTPA Title IIA and Title III*, op. cit.

[24] In interpreting table 5-3, the reader should keep in mind that the States had different amounts of information about participation in various services. Thirty-eight States gave estimates for the percentage of their clients receiving on-the-job training, 34 for job search training, 31 for counseling, and 29 for vocational skills training in institutions. The rest of the States may have offered some of these services; in most cases where States did not respond, they simply lacked information.

[25] Cook, et al., op. cit.

Table 5-3.—Percentage of Participants in Title III Displaced Worker Projects Receiving Various Services, October 1983-June 1984

Percentage of participants provided the service	Number of States reporting			
	Counseling	Job search training	On-the-job training	Vocational training in institutions
≤24%	9	8	14	15
25 to 49%	3	7	11	7
50 to 74%	4	7	5	6
≥75%	15[a]	12	4	1
Totals	31	34	38	29

[a] Thirteen of these fifteen States reported that 90 to 100 percent of their Title III clients received counseling.

NOTE: Total States reporting may not include all the States that offer the service in question. States' information was incomplete on what services were provided to participants in local Title III projects.

SOURCE: OTA telephone survey.

Nine of the twenty-three projects had designed specific skills training programs, usually short-term courses in educational and training institutions. Twelve projects offered some on-the-job training, but few relied on it as the major focus of their efforts. One SDA favored OJT because it provides income to trainees, and others were attracted by the high probability of placement once the OJT subsidy ends.

In its survey of State Title III managers, OTA questioned whether JTPA performance standards, required under the law, are having an effect on the service mix. JTPA directs the Secretary of Labor to set performance standards to determine whether a program meets the goals that Congress established. The Department of Labor issued such standards for the transition year for Title IIA programs, setting numerical values for seven measures of performance, including entered employment rates for adults, youths, and welfare recipients (e.g., the number of people finding jobs in relation to the number terminating from the program); positive termination rates for youths (which includes achieving higher competency in basic reading and math skills as well as finding a job); costs per participant who entered employment and costs per positive termination. States can modify the nationwide standards to accommodate local economic conditions and the character of participants served.

The Labor Department had not yet set numerical standards for Title III by mid-1985, but States were required to establish a standard for entered employment for the formula-funded portion of their Title III program. Forty States reported by early 1985 that they had adopted performance standards, eight of them using Title IIA standards and the others adopting separate Title III standards.[26] By and large, the standards were not overly demanding; only a few States had trouble meeting them. Table 5-4 shows the entered employment standard for the States reporting it and the actual entered employment rate in those States in the transition year. Only a few States include in their Title III performance standards anything beyond costs and entered employment rates. Eleven States reported that they have a standard for reemployment wages, ranging from $4.20 to $5.54 per hour; in two States (Massachusetts and Wisconsin) the new wage must equal at least 85 percent of the wage on the old job. Two States (Washington and Wisconsin) said they specify retention on the new job as a standard (e.g., 90 percent of workers placed must keep their jobs for at least 6 months to meet the standard).

Responses to OTA's survey indicated that pressure to achieve higher placements and lower costs probably issued less from the JTPA performance standards than from the informal goals that program managers and private sector policymakers were striving to achieve. One State, Massachusetts, reported that it had set qualitative goals as well as quantitative place-

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[26] Four of the forty States reporting that they had established performance standards for their Title III programs did not specify what the standards were.

Table 5-4.—Performance Standards for Entered Employment Rates and Actual Entered Employment Rates, by State, October 1983-June 1984

State	Performance standard for entered employment rate	Actual entered employment rate
Alabama	65.0	78
Alaska	48.8	a
Arizona	50.0	91
Arkansas	b	88
California	72.0	73
Colorado	c	90
Connecticut	55.0	89
Delaware	60.0	90
Florida	d	82
Georgia	58.0	76
Hawaii	55.0	73
Idaho	51.8	77
Illinois	d	65
Indiana	b	81
Iowa	55.0	51
Kansas	65.0	89
Kentucky	58.0	59
Louisiana	55.0	80
Maine	80.0	94
Maryland	55.0	66
Massachusetts	75.0	87
Michigan	c	95
Minnesota	58.0	63
Mississippi	60.0	71
Missouri	60.0	81
Montana	58.0	78
Nebraska	b	46
Nevada	68.0	66
New Hampshire	56.0	90
New Jersey	58.0	71
New Mexico	52.0	30
New York	c	68
North Carolina	72.0	96
North Dakota	58.0	38
Ohio	60.0	74
Oklahoma	58.0	53
Oregon	58.0	89
Pennsylvania	e	49
Rhode Island	d	77
South Carolina	65.0	67
South Dakota	63.1	100
Tennessee	58.0	66
Texas	58.0	67
Utah	c	71
Vermont	58.0	85
Virginia	c	73
Washington	60.0	90
West Virginia	c	89
Wisconsin	60.0	91
Wyoming	d	29

[a] No clients were served in Alaska's Title III program in the transition year.
[b] No information available.
[c] Title III standard not established.
[d] Standard established but not specified in reply to OTA survey.
[e] In Pennsylvania, each Service Delivery Area sets performance standards.

SOURCES: U.S. Department of Labor, Employment and Training Administration, unpublished data, for actual entered employment rates (except for Colorado); OTA telephone survey for entered employment rate performance standards and actual entered employment rate for Colorado.

ment and cost goals. The qualitative goals included involvement of labor, PICs, community-based organizations, and community development corporations in Title III programs; encouraging program innovation; and a mandate for equal access to the program for "linguistic and cultural minorities."

Twelve of 42 State Title III managers said that the State's performance standards or goals had a dominating effect on the service mix in projects. Several volunteered that the effect was highly positive. Most saw no conflict between the interests of the clients and the goals of "getting people out quickly" and "stretching dollars." Like many of the directors of local projects, State Title III officials regard short-term, inexpensive job search assistance as best suited to the needs of experienced adult workers. Thirty States saw less influence from State performance goals or standards. A Connecticut official, for example, said the State's Title III program is "people oriented, not goal oriented." In Massachusetts, with its unusual qualitative performance standards, a Title III official reported that the State standards do have an effect, which is to ensure that minority group members receive services.

Officials in five States (Kansas, New Mexico, Oklahoma, Oregon, and Texas) explicitly stated that funding is the driving force behind the service mix in their Title III programs, and many other States alluded to this factor, remarking especially that the high cost of vocational skills training in institutions is a deterrent. Other principal factors determining the service mix were the requirement for State matching funds (which favors OJT, since most States count the employer's 50 percent share of the OJT wage toward the match) and the desire of many displaced workers to return to work immediately. In addition, projects operating in rural areas or small towns are often remote from institutes or community colleges that offer vocational skills training.

Costs to the client as well as to the program are seen as a deterrent to classroom skills training. JTPA discourages support payments and stipends; so far, 6 to 7 percent of Federal Title III funds have been spent for supportive services. Displaced workers who enroll in classroom training must have another source of income, such as unemployment insurance or another family member's earnings. In addition, courses in vocational-technical schools and community colleges are usually on a semester schedule, which may not fit the need of many displaced workers to begin training promptly.

One of the few States to emphasize classroom vocational skills training was West Virginia. With an unemployment rate of nearly 16 percent, the State was not required to match JTPA Title III funds, so that tuition assistance to displaced workers became affordable. With few jobs available, it appeared that clients were willing to invest the time in classroom training. In Ohio, too, with its pockets of high unemployment, officials mentioned considerable use of vocational skills training. Of 10 other States reporting that substantial numbers of clients (one-third or more) were enrolled in classroom skills training, three—Arizona, Colorado, and Utah—offered similar explanations. All three States targeted long-term unemployed miners for service and offered them a chance to train for new occupations.

On-the-job training is favored by State program managers over classroom skills training because it provides an easy match, and clients are reported to like it because they can begin to earn money right away. Nonetheless, the evidence so far indicates that OJT was not much more prominent in Title III programs in the transition year than was classroom training. The reasons must be speculative, but perhaps most displaced worker clients were able to find jobs in an expanding economy with brief, inexpensive job search assistance, without wage subsidies. OJT may in some instances cost less than classroom training, or at least provide a match more readily, but it costs more than job search assistance alone. As mentioned, some projects require clients to search for jobs for a few weeks before allowing them to apply for any kind of training. Other projects may have no such formal requirement but still may regard classroom training as the last resort. For instance, Arizona, with its commitment to retraining unemployed miners, still tried to keep the training brief and to concentrate on improving existing skills such as welding.

Remedial Education

In projects serving displaced workers, staff members often comment on the need many of their clients have for remedial education in basic skills—reading, math, and oral and written communication. It is not uncommon for 20 percent of participants in the projects to test at the sixth grade level or below in reading and math, even when the majority are high school graduates.[27]

Many of the State Title III program managers who commented on remedial education appeared to have a different perspective from that of project staff, who work directly with clients. Some State officials said there was little demand for the service because most displaced workers are not interested in more education. Others said their clients did not need the service because most were high school graduates. Still others said that since remedial education is already offered by local school systems, Title III projects do not need to provide it; rather, the projects should refer clients to existing programs. State officials expressed little interest in finding more effective ways to bring remedial education to workers who need it. Chapter 6 describes a few projects which have devised successful ways to deliver remedial education to displaced workers, overcoming the reluctance that a great many adults feel at exposing incompetence in basic skills.

Not all State officials gave remedial education low priority. States with large numbers of non-English-speaking displaced workers (including Arizona, California, Hawaii, Massachusetts, and Texas) offered training in English as a second language. Utah and Colorado both provided remedial education as a first step in vocational retraining of long-term unemployed miners or steelworkers.

Although 28 of 47 State Title III managers reported that remedial education gets some Title III funding in their programs (either in the form of independent courses or as part of skills training courses), the actual delivery of this service as part of Title III programs appears to be minimal. Only 23 States responded to a question about the number of displaced workers getting remedial education within the Title III program. Five of those States said none of their clients received the service; in the other 18 States, from 0.1 to 18 percent of participants were served. Of 18 States estimating how much Title III money they spent for remedial education, 8 said they spent nothing. No State spent more than 5 percent of its funds in this way, and spending of 2 percent or less of total program expenditures was typical (tables 5-5 and 5-6).

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[27] See ch. 6 for a more complete discussion of the needs of displaced workers for remedial education.

The emphasis in JTPA programs on job placements and program costs may discourage offering of remedial education. Witnesses at a Senate oversight hearing on JTPA in 1984 suggested that this might be so.[28] Most State Title III officials rejected this view. Two agreed that cost considerations were a deterrent. New Hampshire tries to refer clients to remedial education courses funded by non-JTPA sources, and New Jersey serves displaced workers with Title IIA educational funds, when possible. Massachusetts regards its qualitative performance standards as a positive inducement to provide basic education to workers who need it, to ensure equal access to skills training and reemployment services.

Table 5-5.—Basic Skills Education Offered in Title III Programs: Percentage of Clients Served, 1984

Percentage of clients served	Number of States reporting
0	5
0.1 to 4.9%	7
5.0 to 9.9%	4
10.0 to 18.0%	7
Total	23

NOTE: States reporting may not represent all the States offering this service in their Title III programs. States' information on the services provided at the project level was not complete.

SOURCE: OTA telephone survey.

Table 5-6.—Basic Skills Education Offered in Title III Programs: Percentage of Funds Spent, 1984

Percentage of Title III funds spent	Number of States reporting
0	8
0.1 to 2.0%	7
2.1 to 5.0%	3
Total	18

NOTE: States reporting may not represent all the States offering this service in their Title III programs. States' information on the services provided at the project level was not complete.

SOURCE: OTA telephone survey.

Projects that wish to offer remedial education may encounter difficulty in maintaining UI benefits for workers who take the courses. JTPA directs States to excuse displaced workers enrolled in skills training courses from the work test under UI, that is, the requirement that anyone collecting UI must be available for work and actively searching for work. Unless States specifically provide the same exclusion for remedial education, workers enrolled in intensive full-time courses to gain proficiency in reading and math would have to comply with the work test. In the OTA survey, 7 States reported that they do not allow UI for unemployed workers enrolled full time in remedial education courses; 19 said they allow UI benefits to continue; and 17 gave a conditional answer, that is, they excuse workers from the work test only if the State authorities specifically designate the courses as approved training.

The effect of either the UI work test or the JTPA performance standards on offering remedial education in displaced worker projects is not certain. In any event, most State Title III managers do not appear to give high priority to remedial education among the services available to displaced workers.

Funding

Citing the slow rate of spending of Title III grant money through June 1984, the Reagan Administration proposed in February 1985 to cut Federal funding for Title III by more than half. In its 1986 budget, the Administration asked for a rescission of $120 million from the $223 million appropriated for fiscal year 1985, and proposed a similar budget of $100 million for fiscal year 1986. The Administration also proposed to rescind $25 million of $26 million in Trade Adjustment Assistance training funds in fiscal year 1985, and to let the program expire at the end of September 1985, as it was scheduled to do. These proposals for deep funding cuts raised policy issues on the continuity of the Nation's displaced worker program and on appropriate levels of funding in different circumstances.

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[28] The suggestion was made in connection with the Title IIA program, but could apply to Title III as well. See U.S. Congress, Senate Committee on Labor and Human Resources, *Hearings*, op. cit., pp. 102-105, and *Preliminary Oversight* report, op. cit., pp. 8-9.

With the Job Training Partnership Act, Congress attempted to avoid the many changes in funding and program direction that had characterized CETA. JTPA allows an unusual degree of fiscal continuity; funds appropriated for the Federal fiscal year beginning in October are released to the States the following July (the beginning of the JTPA program year) and can be carried over for 2 more program years thereafter. Thus projects may keep Federal funds on hand for as long as 3 years after they are appropriated by Congress. This allows both for long-term planning and the ability to reserve some funds for contingencies. It also means that, since money is appropriated such a long time before it is spent, unexpected changes may occur—either in the economy or in the operation of the program—that would justify another look, and possible adustments to the funding. This is especially true with a new, untried program like Title III.

It is reasonable to conclude that the slow rate of spending for Title III projects through June 1984 and the carryover of $127 million was due largely to delays in starting up a major new program. Some States were quite deliberate about starting slowly, taking their time to put together high-quality programs and avoid wasteful mistakes. The method chosen by a number of States to establish projects—requests for proposals from contractors—has its own built-in lags. JTPA's requirements for the creation of Private Industry Councils and for their approval of project plans added to the delays. In addition, some of the State agencies charged with planning the programs were inexperienced, and on occasion got involved in time-wasting bureaucratic wrangles over control of the Title III funds.

As Title III programs entered their second year, some of the growing pains were over, and many States were allocating money to services for displaced workers at a faster clip. Others, however, were slower to organize effective services, or for other reasons did not serve a large number of displaced workers. In many of these States, the lump of unspent funds carried over from the past was pushed along through the new program year. Nationwide, the unspent funds continued to mount. Summary information from State reports on program year 1984 became available in late September 1985, indicating that the carryover as of June 1985 was about $185 million.[29] As congressional committees made their funding decisions for fiscal year 1986, Labor Department officials argued that the Administration's proposed cut in Title III funds would not affect levels of service, because of the carryover funds.

On the other side, the National Governors' Association, representing the States, strongly opposed the cut. It argued that most States had fully obligated their Title III allocations by the end of June 1985; that spending for displaced worker services was on a sharply rising curve, as States gained experience with the new program; and that the cuts would force sharp reductions in services to displaced workers in many States.[30] The General Accounting Office presented evidence that, because of differences among States in rates of spending and funds carried over, 23 States would have less money for services to displaced workers in 1986 than was allocated to them in 1985. Since the formula for allocating three-quarters of Title III money among the States is written in the law, changing the allocation would be difficult.[31]

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[29] The carryover would have been over $190 million but for the fact that the Secretary of Labor allocated $5.6 million in Title III discretionary funds to the Trade Adjustment Assistance (TAA) program in the spring of 1985. After the Administration proposed a rescission of nearly all TAA funds for fiscal year 1985, disbursal of TAA funds was frozen while Congress considered the rescission. Congress did not act on the rescission, but the Administration did not release the TAA funds until the legal time for Congress to act had passed. Meanwhile, the TAA program operated on JTPA Title III funds.

[30] National Governors' Association, op. cit.

[31] U.S. Congress, House Committee on Education and Labor, Subcommittee on Employment Opportunities, *Hearings* on the

(continued on next page)

In approving the Title III budget cut, the appropriations committees of both houses of Congress indicated that they did not expect a reduction in levels of service to displaced workers.[32] The House Appropriations Committee anticipated that the large carryover of unspent funds would make it possible to maintain the same program level in 1986 with substantially less budget authority. The Senate Appropriations Committee said the program's operating level is expected to remain constant nationally. The committee expected the Secretary of Labor to use discretionary funds to prevent serious program disruptions in individual States, and to keep it advised about the possible need for additional appropriations. The conference report on the continuing resolution, adopted by Congress on December 18, 1985, directed the Secretary of Labor to give first priority for discretionary funds to States that would otherwise have to cut back services, and to report on possible needs for added funds to maintain program levels.[33]

The effect of these funding changes on the stability, quality, and level of services to workers is not yet clear. States with large carryovers of funds may be little affected. States that started early with an active program serving displaced workers are likely to be without such a cushion. If a large share of the Secretary's discretionary funds is devoted to helping out these States, then less will be available for the original purposes of the fund—responding to contingencies such as mass layoffs or natural disasters, easing the effects of relocating Federal Government facilities, or giving extra help to areas of high unemployment. Another problem is that some States have fully obligated their fiscal year 1985 Title III funds; even though this money is not yet spent, it is not available for needs that may arise during the next year. In any case, it may be difficult for some States with active, established Title III programs to plan for continued high-quality services to their displaced workers.

A major reason for States to carry over some portion of their Title III funds is to keep contingency funds on hand. Plant closings do not occur on a predictable schedule. Although the law allows for tapping the Secretary of Labor's discretionary funds in case of unexpected plant closings, States cannot always count on this resource. Managers of 49 State Title III programs, taking part in conference calls sponsored by the National Governors' Association in February 1985, expressed serious concern about delays in receiving discretionary funds.[34] According to many States, the Department of Labor takes far longer than the prescribed 60 days to decide on applications. Disbursal of discretionary grants has been slower than spending from formula-funded grants, which are under State control. Twenty-two percent of the $51 million in discretionary funds was spent in the transition year, versus 42 percent of the $150 million in formula grants. In program year 1984, States reported to NGA that they had spent over 70 percent of their formula funds, but only about 30 percent of discretionary grants.[35] Nor can States be sure that their requests for discretionary funds will eventually be approved. For example, both Arizona and Rhode Island got an early start on unusually active Title III programs, and neither carried over large contingency funds. Both applied for discretionary grants to respond to major plant closings, but both were turned down on the grounds that their statewide unemployment rates were low. Both these States nevertheless had large numbers of displaced workers in relation to the size of their work forces. As discussed in chapter 4, significant displacement can occur even in prosperous times and areas.

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Job Training Partnership Act, Title III, testimony of William J. Gainer, Associate Director, Human Resources Division, U.S. General Accounting Office, Nov. 8, 1985.

[32] U.S. Congress, House Committee on Appropriations, *Report, Departments of Labor Health and Human Services, and Education, and Related Agencies Appropriation Bill, 1986*, 99th Cong., 1st sess., House Report 99-289, Sept. 26, 1985, p. 9; U.S. Congress, Senate Committee on Appropriations, *Report, Departments of Labor, Health and Human Services, and Education and Related Agencies Appropriation Bill, 1986*, 99th Cong., 1st sess., Senate Report 99-151, Oct. 4, 1985, p. 11.

[33] U.S. Congress, House of Representatives, *Conference Report, House Joint Resolution 465, Further Continuing Appropriations for Fiscal Year 1986*, 99th Cong., 1st sess., report 99-450, pp. 361-362.

[34] Evelyn Ganzglass, Memorandum to State JTPA Liaisons on the State Title III Conference held by the National Governors' Association Feb. 13-14, 1985, Mar. 7, 1985. Four 1-hour regional conference calls were held in the 2-day session.

[35] National Governors' Association, op. cit.

In originally proposing the deep cuts in Title III funding, the Administration attributed the carryover from the transition year to a single reason: that few workers indicated a need for extensive retraining, generally the highest priced of authorized services, so that the program was much less costly than anticipated. Considering the other reasons for the initial low rate of spending, this reason probably was not dominant, although it may have had some effect.

Through 1985, Title III programs operated in an economy that, nationwide, was expanding and adding jobs. (There were regional exceptions, such as the steel centers of Ohio, West Virginia, and western Pennsylvania.) Yet worker displacement was still occurring, and the national unemployment rate remained above 7 percent. Most States, even prosperous ones, reported that restructuring of industry was continuing, plant closings were still numerous, and the number of displaced workers eligible for services was not declining.[36] Most States also reported that there was substantial demand for their displaced workers services in 1985.[37] Five States volunteered that their funding was not sufficient to take care of all the demands. There is evidence, however, that displaced workers are not as inclined to seek retraining when jobs are available as they are during recessions, when training is a constructive alternative to idleness. Moreover, the overall demand for employment and training services is higher during hard times.

As noted elsewhere in this report, vocational skills training is an indispensable part of a high-quality displaced workers program, no matter what the economic circumstances. For many workers displaced from semiskilled or unskilled factory jobs, the best hope for new jobs with chances for advancement, either in manufacturing or in service sectors, lies in vocational skills training. Many well-run projects make a strong commitment to vocational training for this reason. Even so, economic conditions do affect the demand for retraining and other readjustment services.

Other changes also may influence demand. For example, improving the quality or delivery of services to displaced workers may stimulate increased participation. As discussed in chapter 6, projects that combine several key elements—bringing services to the workers in plants undergoing closure or layoffs, involving management and labor in delivery of services, starting services early (before layoff if possible), and offering a comprehensive range of services—are most likely to attract high levels of participation. If Congress wishes to encourage and support more States in adopting proactive programs of this kind, the result could well be a substantially enlarged demand for services. Thus, depending both on economic circumstances and program changes, demands for services may rise or fall, and Congress may wish to adjust funding for the national displaced worker program.

Information Collection: The Federal Role

As Congress considered both the proposed rescission of Title III funds for fiscal year 1985 and JTPA funding for fiscal year 1986, the lack of adequate, timely data on spending and services became a trying problem. The U.S. Department of Labor requires that States report on Title III activities only once a year, within 45 days after the end of the program year on June 30. In practice, the reports are usually not complete until several weeks after the due date. In both 1984 and 1985, the Labor Department did not publish data from the State reports until late November. The infrequency of these reports and the timing of their collection and publication is ill-suited to the needs of Congress, both for budget decisions and oversight of the program.

In spring 1985, for example, when Congress held hearings on the budget for the following year and considered the rescission proposal, the most recent State reports on their Title III programs dated from June 30, 1984. In mid-September, when congressional committees were marking up and voting on appropriations bills, these State reports—now over 1 year old—were still the latest on Title III activities. Summary information from the State reports on program year 1984 (ending June 1985) became available only in the last few weeks before Congress took final action on JTPA funding. In early November, at the request of the House Education and Labor Committee, Subcommittee on Employment Opportunities, the General Accounting Office obtained more detailed data showing program year 1984 spending by individual States, in order to analyze the effect of the 55 percent cut in appropriations state-by-state.

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[36] Ganzglass, op. cit.

[37] National Governors' Association conference call and OTA telephone survey.

State reports on Title III activities are not only infrequent but very brief. The Federal requirements for information in the reports include nothing more than the number of people enrolled in the program, the number who terminated, the entered employment rate for those who terminated; a few items on the gender, minority status, age, and educational level of terminees; and the amount of Federal funds spent during the year—but not the amount obligated by the end of the year. This information is a slender basis for analyzing the performance of JTPA programs, for determining funding needs in relation to performance, for learning from experience, and for improving future performance.

The Labor Department has supplemented the annual reports with more frequent surveys of selected projects and other kinds of studies that provide richer detail. These studies, current and planned, will supply some of the information missing from the annual State reports. Quarterly and semiannual surveys of geographically representative Title III projects add limited information on the service mix (initial assignments to job search assistance, classroom training, OJT, or other services) and outcomes (entered employment rates and reemployment wages) by kind of service. The studies also provide information on how many clients participated and their length of stay in the program. These studies are useful, but incomplete. Data on some important kinds of services are not covered, for example, on remedial education and relocation assistance. Also, because of problems in finding representative Title III projects, the results are somewhat uncertain.

The Department of Labor also plans to carry out long-term studies comparing earnings of JTPA program participants and nonparticipants. This kind of study is uniquely valuable in showing the overall effects of employment and training programs and in helping Congress to evaluate their long-term worth. These studies will not, however, meet the need for timely information at shorter intervals.

Early Warning of Layoffs and Pre-Layoff Assistance

The need for an early warning system for plant closures and large layoffs, to allow assistance to workers before they are out of a job, is a leading concern of Title III program directors. State officials repeatedly raise the topic in conferences and surveys.[38] Some argue that early action to assist displaced workers benefits not only the workers but employers and society at large. With a reemployment program in place before the layoff, worker morale tends to stay high, to the advantage of employers as well as employees. Many workers can be helped to find a new job without interruption, thus saving themselves loss of income, saving outlays from the State UI trust fund, and saving employers payment of taxes into the fund. Other workers can plan for training in a new occupation while they still have their full UI eligibility ahead of them for income support.[39]

Several States attempt to collect information about impending layoffs, and bring reemployment programs to the workers early. Some try to encourage cooperation from employers in giving advance warning of layoffs. Few States have enacted laws to require advance notice, but about 20 have given them some consideration in the last few years. Chapter 6 discusses advance notice in the context of services to displaced workers and summarizes the arguments for and against legally requiring advance notice.

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[38] Ibid.

[39] See ch. 6 for a detailed discussion of the possibilities and advantages of early action before layoffs occur.

Arizona, New Hampshire, Rhode Island, South Carolina, and Texas are some of the States that are active in rapid response. Arizona, for example, created a Pre-Layoff Assistance Coordination Team (PACT) to mobilize services of the State Title III program, the Employment Service, the UI program, and where appropriate, community block grants and community colleges, at the first announcement of a plant closing or layoff. The team brought services to the workers in the plant or at a nearby center; offered testing, counseling, job search workshops, and job placement; and requested that the employer give workers time off during the working day to attend the pre-layoff sessions. The employer was also asked to appoint a company coordinator to take charge of company activity and cooperate with the PACT; to let employees know what services were available; to host a Job Fair, if possible, and to try to place its laid-off workers with business contacts, suppliers, or even competitors. Arizona officials reported that in 10 months of operation (through February 1985, when Arizona's Title III funds were nearly fully obligated), the PACT team enrolled 1,275 workers. Of those, an estimated 250 to 300 were reemployed before layoff—generally in just a few days, since notice of the layoffs was usually brief. Once the plant was closed, the remaining clients were transferred to one of Arizona's permanent, continuing displaced worker centers for further service, until placement.

Although some States by 1985 had put substantial effort into pre-layoff assistance, others were not prepared to respond quickly and effectively when companies requested help in serving employees who were about to be laid off. Some companies, unable to get adequate technical assistance from local PICs or the State Title III program, hired private consultants to help organize services for their displaced workers, using Title III funds. As discussed in chapter 6, advance notice of layoff is much diminished in value if high-quality adjustment services are not offered promptly to the affected workers. According to some private consultants who help companies plan displaced worker services, PICs and State program officials are improving in their ability to respond to calls for help, but many still have a long way to go. The 5 percent limit on State administrative costs for JTPA programs may be partly responsible for some of the States' failings in providing technical assistance. The potential for building either a small Federal agency or State agencies capable of providing rapid response to plant closings and layoffs is discussed elsewhere in this report (chs. 2 and 6 and the section entitled Canada, this chapter).

Some States are interested in using rapid response teams for another purpose other than providing services to displaced workers; that is, to try to avoid a plant closing or layoff by offering assistance of various kinds to the company (see the section in this chapter entitled Community and Government Assistance to Prevent Plant Closings). A number of State managers of Title III programs have expressed the desire to use JTPA funds for retraining active workers, so as to avoid displacement in the first place. JTPA allows Title III services to commence when workers receive notice of layoff, but not before. A few States have begun to use Title III funds more preventively, authorizing retraining of active employees when employers announce that they will be laying off unless retraining assistance is forthcoming from a Title III project. A few States have adopted programs to assist in the retraining of active workers who would otherwise be displaced (see section in this chapter entitled Non-Federal Programs: Retraining of Active Workers).

Under the Carl D. Perkins Vocational Act of 1984, employers can get Federal assistance for retraining their active employees (see ch. 7). A special new program authorized under the Perkins Act would support education and training programs designed cooperatively with employers, and open to employed individuals who require retraining to retain their jobs, or who need training to upgrade their skills to qualify for higher paid or more dependable employment. Congress did not provide funding for this program in fiscal years 1985 or 1986.

Eligibility

JTPA's definition of displaced workers can be construed quite broadly. It encompasses most adult workers who have lost a job, or have received notice of termination, and are not likely to return to that job or a similar one, or have been unemployed for a long time and probably will not find employment in their old occupation and home area. (See table 5-7 for the JTPA definition of displaced workers.) States have some leeway to alter the definition, but most have not done so. Thirty-four of forty-nine States responding to OTA's telephone survey used JTPA's definition; another two added language that made the definition more explicit; and two more directed Service Delivery Areas to determine eligibility under the JTPA definition. Seven States added restrictions to the definition, four broadened it to cover more workers, and two States did both (table 5-7).

The alterations of the JTPA definition point out special problems that some of the States face—in particular, high local rates of unemployment and, in farm States, foreclosures. Six of the eight States that narrowed eligibility have unemployment rates higher than the national average. One, Illinois, explicitly stated that it had too many displaced workers to serve adequately with available funds. Its definition is one of the most restrictive: the displaced worker must have been in an occupation that is not growing (as determined by the State Depart-

Table 5-7.—State Definitions of Displaced Workers That Restrict or Extend the JTPA Definition[a]

State	Restrictions and extensions
	Restrictions:
Alaska	Worker must be: 1. a resident of the State, and 2. attached to an industry for 3 years or more, and 3. terminated due to a closure or a reduction in the work force, and 4. unlikely to return to former occupation or industry.
Illinois	Worker must: 1. be in an occupational group that is not growing (as determined by State agency), and 2. have proof of a job search of at least 1 month.
Kentucky	Worker must: 1. have been laid off no more than 3 years ago, and 2. have worked in layoff job or occupation at least 1 year.
Kansas	Worker must have been laid off no more than 2 years ago.
Nevada	Worker must have been laid off no more than 3 years ago.
Pennsylvania	Worker must have been laid off no more than 2 years ago (waivers may be granted).
West Virginia	Worker must have been a victim of a complete closure of plant or mine or of another operational closure.
	Extensions:
Arizona	Serves workers who: 1. have received or *will receive* notice of termination;[b] 2. were long-term unemployed (13 weeks) or have exhausted their UI benefits, and *have taken stop-gap employment* (at substantially lower pay or skill level than on the old job)[b]
Iowa	Serves self-employed people who have filed for bankruptcy or have a notice of foreclosure (including farmers)
Kansas	Serves self-employed people such as farmers or businessmen.
New Hampshire	Serves victims of plant closings or *major layoffs* (25 or more people).[b]
Wyoming	Serves workers who are: 1. Victims of plant closings or *substantial layoffs,*[b] 2. Eligible for retraining under Trade Adjustment Assistance, and 3. Unemployed and affected by economic or industrial changes that have resulted in loss or reduction of employment opportunities, as determined by State officials.

[a] The definition of dislocated workers in JTPA, Sec. 302, is as follows:
- Each State is authorized to establish procedures to identify substantial groups of eligible individuals who:
  —have been terminated or laid-off or who have received a notice of termination or layoff from employment, are eligible for or have exhausted their entitlement or unemployment compensation, and are unlikely to return to their previous industry or occupation;
  —have been terminated, or who have received a notice of termination of employment, as a result of any permanent closure of a plant or facility; or
  —are long-term unemployed and have limited opportunities for employment or reemployment in the same or a similar occupation in the area in which such individuals reside, including any older individuals who may have substantial barriers to employment by reason of age.

[b] Emphasis added to denote difference from definition in JTPA Sec. 302.

SOURCE: OTA telephone survey.

ment of Commerce and Community Affairs), and must show proof of a job search of at least 1 month. West Virginia limited eligibility to victims of plant and mine closings. In Alaska, where unemployment remained as high as 10.5 percent in late 1984, the State definition imposed such stringent restrictions that Title III officials found it difficult to apply. No clients were served in Alaska in the transition year.

Several States effectively ruled out service to the very long-term unemployed by restricting services to those laid off no more than 1 to 3 years ago (table 5-6). Maine, which does not have a high unemployment rate but does have a large pool of long-term displaced workers to serve, takes a different approach. It does not restrict eligibility, but does no outreach, to guard against being overwhelmed with clients. Arizona, on the other hand, broadened the definition of the long-term unemployed to include workers who took jobs at substantially lower pay and skill level than on their old jobs.

Of the five States that broadened the definition of eligible workers, two (Kansas and Iowa) included self-employed people such as farmers. North and South Dakota did not explicitly extend the definition to farmers, but did set up special training activities for them under Title III. Some of the farm States extended training assistance to whole families who were losing their farms and livelihoods—to wives and older children who were now looking for nonfarm work, as well as to heads of farm households.

Three States (Florida, New York, and Pennsylvania) reported that they serve displaced homemakers in their Title III programs, even though these women often have limited experience in the job market and do not fit the usual definition of displaced worker. In these States, displaced homemakers were included as long-term unemployed.

Several additional States expressed interest in serving displaced homemakers under Title III, or the displaced self-employed, or farmers, or the underemployed who had taken stop-gap jobs; but they were unsure of their authority to do so. States that broadened eligibility did it on their own, without guidance from the Department of Labor. Some officials in these States, and others in States which did not expand eligibility but considered it, believed they were running a risk of disallowance in audits by the Labor Department's Inspector General.

Creaming in Participant Selection

The strong emphasis under JTPA on high job placements and low costs has led some people to question whether the workers who are most job-ready, and least in need of assistance, are being selected to participate. Early studies of Title IIA projects (for disadvantaged workers) indicate that this may be occurring,[40] but studies of Title III projects have found little evidence of creaming. In States where there are too many displaced workers to serve adequately (e.g., Illinois), eligibility restrictions do rule out some applicants, but not by screening out the less able. Some projects require participants to attend workshops for learning job search skills at the outset; they consider that workers who do not attend are not motivated enough to benefit from other project activities. The only evidence of overly rigid selection of participants in Title III programs is limited and anecdotal. A few reports suggest that contractors providing training on a performance basis (i.e., they do not get paid until the trainee is placed) are extremely selective in choosing their candidates. Since most Title III projects emphasize job search assistance, not training, this kind of creaming probably does not affect large numbers of displaced workers.

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[40] Both the Westat study, commissioned by the Department of Labor, and the "independent sector" Grinker-Walker study reported extensive screening of applicants to Title IIA projects, both at initial intake by Service Delivery Areas and later for admission to on-the-job or classroom training. The issue was a recurring topic in oversight hearings of the Subcommittee on Employment and Productivity of the Senate Committee on Labor and Human Resources, in Jackson, Mississippi, on July 12, 1984. Some witnesses at the hearing pointed to the positive aspects of screening—that it helps to select those "able to benefit" as well as those "in special need" of JTPA services; both purposes are mandated by the law. The reports also pointed out that many demographic characteristics are the same for JTPA Title IIA participants as they were for CETA (e.g., as many minority group members are served). However, fewer high school dropouts are being served under JTPA. See Cook, et al., op. cit., ch. 6; and Walker et al., op. cit., pp. 50-69; U.S. Congress, Senate Committee on Labor and Human Resources, op. cit.

Photo credit: UAW-Ford Employee Development and Training Program

Individual assessment of background and skills is an important part of reemployment/retraining programs for displaced workers. Here, a laid-off Ford employee is interviewed by a participant coach at a Career Services and Reemployment Assistance Center, established under UAW-Ford Employee Development and Training Program.

Generally, it appears that most States have not imposed barriers to entering Title III projects, as long as displaced workers meet the broad criteria set forth in JTPA. In fact, a number of States confronted with severe displacement problems that were not very evident when the act was passed (e.g., farm foreclosures) seem willing to stretch the definition to serve the affected workers.

Federal Guidance

Federal direction and oversight of the national employment and training program is minimal. JTPA gave the States the primary role of oversight, and they have assumed it—so much so that one JTPA State director said of the Department of Labor: "It's as if they dropped off the face of the earth."[41] The question that arises is whether the Labor Department has carried the hands-off approach so far as to cause difficulties in the program.

The problem, as some State officials see it, is that Federal auditors (mainly, the Labor Department's Inspector General) will not be as "noncommittal and noninterventionist" as the Department itself has been. The practical effect is "paranoia" in some States.[42] To avoid later trouble with audits, they have imposed strict regulations and paperwork requirements on Service Delivery Areas and other service providers. A study of Title IIA programs reported that 36 of 57 SDAs (63 percent of the sample) found State reporting and other administrative requirements more burdensome under JTPA than under the federally directed CETA.[43] Anecdotal evidence suggests that some Title III projects are also suffering from excessive caution and bureaucratic delays at the State level. One director of a project that received Title III funds said it took 6 months to get State approval of a $1,500 invoice.

Areas of uncertainty mentioned by some State Title III managers include the definition of eligibility for Title III services and the acceptability of some kinds of funding as State matches for Title III funds. Not all States complain of too little guidance from the Labor Department, however; and some complaints may reflect the inevitable problems and uncertainties in taking charge of a new program.

There is little dispute that it is entirely appropriate for the Federal Government is to help States and individual projects exchange information about their practices, successes, and failures. For several years, the Labor Department's Bureau of Labor-Management Relations and Cooperative Services has collected information, published reports, and held workshops on model displaced worker projects, particularly those sponsored by employers or by labor and management together. In 1985, the Labor Department commissioned a report on model Title III projects.

In addition, the Labor Department provides funds to organizations such as the National Governors' Association and the National Alliance of Business to support informal, direct exchanges of current information among the

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[41] Walker, et al., op. cit., p. 135.

[42] Ibid., p. 138; see also U.S. Congress, Senate Committee on Labor and Human Resources, *Preliminary Oversight*, op. cit., pp. 7-9.

[43] Ibid.

State, local, and private parties who are providing employment and training services. A number of States hold regional JTPA conferences for the same purpose. Except for the small labor-management bureau mentioned above, the Labor Department itself is not much involved in activities of this kind. The State Title III officials interviewed in OTA's telephone survey stressed the importance of exchanging information about their programs; in fact, some of them sought information about other States' practices from the interviewer.

Some States reported considerable difficulty in managing information about their programs for their own internal planning. A number of States, afraid of exceeding the 5-percent limit imposed by JTPA on State administrative costs, do not have adequate staff to operate their management information systems. According to some States, for example, the spending limit rules out hiring data entry clerks. In some, local service providers enter data in their own systems, but there is no hookup to the State administrative agency that is supposed to monitor the information. One State, West Virginia, reported that local information is being delivered to the State system but the technical expertise to gain access to it is lacking. Some of these problems may be worked out with time, but some States might benefit from more technical assistance from the Labor Department in setting up and operating management information systems.

The State Match

One aspect of the JTPA Title III program with which States report substantial dissatisfaction is the requirement to match formula-funded grants dollar-for-dollar. In a few States, including California, Delaware, Iowa, Nebraska, and New York, legislatures have provided funds that Title III programs can use for part or all of the match, but the majority of States assemble a variety of in-kind contributions (e.g., donated private or public facilities, machines, time of instructors at community colleges, employer-donated staff time), and the employer's half of OJT wages. UI benefits are an important component; JTPA allows the States to meet up to half their match obligation with UI payments. This extremely varied way of putting together matching funds, most State officials agree, imposes quite a bookkeeping burden. Another criticism is that most sources for the match do not really add anything to the Title III program, since they would be provided anyway; they only add to the paper work. This criticism applies especially to UI benefits.

More important, the match requirement biases the shape and content of the States' programs. Several States commented on the attraction of OJT, because it automatically provides a match. Vermont officials, for example, said they use OJT almost 100 percent for this reason. One State JTPA director commented that State programs use OJT more than may really be desirable; less costly job search assistance might suffice for many clients. He said: "Our first question should be 'how can we help?' not 'how can we match?' "

The match requirement may determine who delivers services. In fact, 22 of 46 States reported that this factor affected their selection of project operators. For example, most Illinois Title III projects are located in community colleges, which generate a match with in-kind contributions. This may be as good a choice as any other. But the match consideration does tend to rule out such project operators as labor unions or nonprofit community-based organizations. It may also determine to some degree who gets service. Seventeen of forty-five States said that the matching requirement leads to targeting of services to workers eligible for unemployment insurance. The State of Washington explicitly requires that half of the participants in Title III projects be recipients of UI benefits, thus providing a match. One State, South Dakota, simply avoided the problem in the transition year by spending only funds left over from the Emergency Jobs Bill of 1983, which did not require a match.

At least one State, Arizona, tries to ensure service for the most workers by designating unusual sources as matching funds, including the severance pay employers provide to laid-off workers, release time that employers give workers to attend activities in Title III projects, and the money workers spend in relocating that is not repaid from Title III funds. Such adventurous States may be risking disallowance of their matches on audit. So far, no matching funds have been disallowed.

As States gain more experience with the Title III program, difficulties with the matching requirement may recede. Some States with budget surpluses may consider enacting their own displaced worker programs, thus providing a reliable source of matching funds. In general, States have a good deal of experience with matching many kinds of Federal grants, and have come to terms with the requirement. Possibly, the very flexibility JTPA allows States in providing a match—with public or private funds, in cash or in kind—has caused some initial confusion. But this flexibility is a positive feature in that it helps poorer as well as richer States offer services to displaced workers. Another positive feature of JTPA is its forgiveness of part or all of the match in States with unemployment rates above the national average, thus ensuring services in States where needs are likely to be great and the States' ability to contribute small.

Trade Adjustment Assistance

The once large and costly TAA program was much reduced by the mid-1980s, but still provided substantial benefits to eligible displaced workers. In 1984, about 30,000 workers were certified by the Department of Labor as having lost their jobs due to foreign competition and therefore qualifying for assistance. By comparison, at the height of the program in 1980, over 585,000 workers were certified as eligible (table 5-8). Not only did the number of certified workers decline after 1980, but extensive income support payments for unemployed workers were also sharply cut. In 1985, the TAA-eligible worker could receive income support payments, or Trade Readjustment Allowance (TRA) only as a continuation of, and at the same level as, his basic UI benefits, and only up to 1 year of UI and TRA combined. Payments could be extended for another 6 months if the worker were in approved training.

Table 5-8.—Workers Certified for Trade Adjustment Assistance, Calendar Years 1975-84

Year	Workers certified
1975[a]	54,842
1976	143,578
1977	143,700
1978	164,407
1979	221,082
1980	585,243
1981	32,820
1982	21,127
1983	53,366
1984	29,800
Total	1,451,965

[a] Data for April through December

SOURCE: U.S. Congress, House Committee on Ways and Means, *Background Material and Data on Programs Within the Jurisdiction of the Committee on Ways and Means*, 99th Cong., 1st sess., Committee Print WMCP: 99-2, Feb. 22, 1985, p. 264

As table 5-9 shows, outlays for TRAs dropped from a high of $1.6 billion in fiscal year 1980 to $35 million in fiscal 1984; outlays were expected to be about $45 million in fiscal year 1985.[44] The TAA appropriation for training, out-of-area job search, and relocation assistance was $26 million in fiscal year 1985. A parallel TAA program of assistance to firms provided technical and financial assistance to firms in trouble because of foreign competition. The 1985 appropriation for TAA assistance to firms was $25 million; from 1975 to 1984, the program cost $300 million.

With the reduction of the TAA program, the delays that once characterized it were also much reduced. The Employment and Training Administration of the Labor Department, which administers the program, reported that in 1985 petitions for certification from workers were virtually all acted on within 60 to 90 days.

As of 1985, the emphasis in the TAA program for workers was on training and, to a considerable degree, on helping eligible unemployed workers look for work in more promising areas and relocate. What TAA provides for workers in training that JTPA Title III does not is income support, up to 1 year after the basic 26 weeks of unemployment benefits are

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[44] Trade Readjustment Allowances are funded as part of the larger Federal Unemployment Benefits Assistance Account and do not receive separate line-item appropriations. Therefore outlays, not appropriations, are reported for TRAs.

Table 5-9.—Trade Adjustment Assistance, Participants and Services, Fiscal Years 1975-84

Fiscal year	Workers receiving TRAs (millions of dollars)	Outlays for TRAs (millions of dollars)	Number of workers			Outlays (millions of dollars)		
			Entered training	Job search	Relocation	Training	Job search	Relocaton
1975 (4th quarter)	47,000	71	463	158	44			
1976	62,000	79	823	23	26		2.7	
1977	111,000	148	4,213	277	191	3.8		0.2
1978	156,000	257	8,337	1,072	631	12.0	0.2	0.6
1979	132,000	256	4,458	1,181	855	12.0	0.3	1.2
1980	532,000	1,622	9,475[a]	931	629	5.2	0.1	0.7
1981	281,000	1,444	20,386[a]	1,491	2,011	1.9	0.3	2.0
1982	30,000	103	5,844	697	662	18.4	1.0	
1983	30,000	37	11,299	696	3,269	33.0	3.0	
1984	24,000	35	6,538	757	2,382	18.5	0.2	2.3

[a] Of workers entering training in 1980, 5,640 (59 percent) paid for their own training costs, in 1981, 18,940 (94 percent) paid for their own training. Trainees were eligible for TRA living allowances.

NOTES: Trade Readjustment Allowances (TRAs) provide income support during unemployment or or training. Job search expenditures are for job searches outside the worker's commuting area. In 1976, 1977, 1982, and 1983, not all outlays for training, job search, and relocation were reported separately.

SOURCE: U.S. Congress, House Committee on Ways and Means, *Background Material and Data on Programs Within the Jurisdiction of the Committee on Ways and Means*, 99th Cong. 1st sess., Committee Print WMCP 99-2, Feb. 22, 1985, pp. 267-269.

exhausted. Once groups of workers are certified as eligible for TAA, the local Employment Service office deals with individual workers, trying to place them in suitable jobs or, failing that, arranging for training. The ES offices may approve training only if no suitable employment can be found, if the training is likely to lead to a job, and if the worker is qualified for the training. On-the-job training is favored, but classroom training may also be approved. In fiscal year 1983, the number of TAA-eligible workers enrolled in training amounted to more than one-third of those receiving income support payments and to over one-quarter in fiscal year 1984 (table 5-9).

Helping workers to relocate is a significant part of the TAA program. Eligible unemployed workers who cannot find suitable jobs in their commuting area can conduct out-of-area job searches and collect reimbursement for 90 percent of necessary expenses up to $800. They can also collect 90 percent of reasonable and necessary moving expenses for themselves and their families, up to $800. This allowance of $1,600 for out-of-area job search and relocation is far above what is available in most JTPA Title III programs. Although JTPA can pay for both services, funds must be shared among many other activities. Some States consider relocation assistance a support service, so that the money to pay for it has to come out of the JTPA funds allocated for nontraining expenses (roughly 30 percent). This puts a strict limit on funding.

In Arizona, for example, where 60 percent of Title III clients had lost jobs in the deeply depressed mining industry or mining towns, relocation to such thriving areas as Phoenix and Tucson is a much-favored option; 15 percent of participants are reported to receive relocation services. The State JTPA program officials feel they cannot afford more than a $650-per-worker allowance for out-of-area job search and relocation, even though they would like to encourage more clients to consider this alternative.

The continued existence of the TAA program is in question. In its 1986 budget, the Administration opposed extending TAA past the expiration date of September 30, 1985; a proposed rescission for 1985 (which Congress did not agree to) would have removed all but $1 million from the $26 million already appropriated for training, job search, and relocation for fiscal 1985, on the grounds that JTPA served the same purpose and TAA was not needed. In September 1985 Congress passed, and the President signed, a temporary extension of TAA, and there were reports that the Administration was reconsidering its position of trade adjustment assistance. Meanwhile, at least 13 bills had been proposed in Congress to extend or modify TAA. One approach was to create a trust fund to finance TAA, supported by a small uniform import duty. The Senate adopted this idea in its budget reconciliation bill, reauthorizing TAA and providing earmarked funding from the import duty. As Congress adjourned at the end of 1985, it had not passed the budget reconciliation bill, which contained authorization of TAA. Thus, TAA authority expired, at least for the time. However, it may be revived, since Congress has shown a strong interest in the program. As this report was written, certified workers can continue to receive allowances for retraining and relocation through the end of fiscal year 1986, according to a continuing resolution passed in late 1985.

TAA has been criticized for its cause and effect approach—an "over-preoccupation with pinpointing the cause of dislocation"—leading to inconsistencies in certifying workers for eligibility.[45] As discussed in chapters 8 and 9, it is difficult—often impossible—to disentangle trade from other causes of displacement, such as technological advance and changing consumer preferences. On the other hand, it can be argued that it is equitable to give special adjustment assistance to workers who can be identified as directly paying the costs of a government policy—in this case, the lowering of trade barriers—which is intended to benefit society as a whole. For eligible workers, TAA provides significant benefits in addition to those available under JTPA Title III: extended income support for people in training and more generous relocation assistance.

The Employment Service

The nationwide network of Employment Service offices is playing a substantial role in serving displaced workers. The State Employment Security Agencies, which administer the ES offices, provide services for fees to Title III projects in 33 States. In 10 States, they provide services at no fee to the JTPA program, and in three there is a mixture of free and for-fee services. Ten States have put their Employment Security Agencies directly in charge of Title III programs, establishing basic testing, counseling, job search assistance, and training referral services in local ES offices throughout the State, and then adding other elements such as OJT contracts with local businesses. In other States, local ES offices submit proposals to the State JTPA officials to operate displaced worker programs. The most common arrangement is that the local Title III project buys from the ES office services such as job development and placement or helping to run a job search workshop. There are only seven States or territories in which the ES system takes no part in Title III programs.[46]

The extra money furnished by JTPA has made possible most of the contributions from the ES system. With only its own resources, the ES system could hardly provide the assessment, testing, job counseling, development of job opportunities with employers, help with self-directed job search, and referral for suitable skills training that a good displaced worker program offers. For years, the ES system did not grow, despite large increases in the work force and despite special responsibilities imposed on the system by Federal and State laws (e.g., the duty to make special efforts for disadvantaged workers and other target groups). From 1966 to 1981, the staff level for basic ES services was kept at 30,000 positions while the civilian work force increased 45 percent.

In fiscal year 1982, Congress cut the ES system staff to 24,800 positions, and there it remains. Most State agencies have responded to the cuts not by closing offices but by stretching staff thinner and cutting services—usually the more politically acceptable solution. There were still some 2,400 ES offices nationwide in 1985, about the same number as in 1981. But counseling services, which had reached only 7 percent of clients in 1981, dropped by 40 percent during the same time. Testing, previously available to 5 percent of ES clients, declined by 30 percent.[47] By and large, it is only in JTPA projects, with their infusion of extra funds, that ES staff are able to offer such individual services.

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[45] Paula Duggan and Virginia Mayer, *The New American Unemployment: Appropriate Government Responses to Structural Dislocation* (Washington, DC: The Northeast-Midwest Institute, 1985).

[46] Information provided by the Interstate Conference of Employment Security Agencies.

[47] Ibid.

Automation

Since the late 1960s, the ES system has tried to compensate with automation for the limited time the staff can devote to individual clients. Today, the entire system has more-or-less automated job banks serving every metropolitan area and, in some cases, entire States. The job bank is a current listing of new and unfilled job orders, collected in a central office from every local office in the area. Some local offices still send in their job orders overnight by courier and receive an updated list the next morning, but about 20 States have an intrastate computer network, and can update listings throughout the workday.[48]

The job banks have the obvious advantage of opening to applicants in every local ES office the job listings from all other ES offices in the area. Their main drawback is that they weaken personal links between ES staff members and employers who may be long-standing clients. Some offices hold their job bank listings closely, disclosing them only in individual interviews with jobseekers. Others release a censored version of the listings, with the employer's name removed, to other institutions (such as to Title III projects) or to jobseekers themselves. The idea is to protect the employer from unwanted calls from unscreened applicants.

A more complex use of automation is in job matching. The jobseeker's skills and experience are described and coded, and then compared with the characteristics of jobs on order to find a good fit. The key to the usefulness of the system is in the choice of descriptors and their application to individual cases. Two descriptor systems have been developed for the Department of Labor, one based on the detailed job descriptions in the *Dictionary of Occupational Titles*, the other on key words that cut across job titles. Applying the descriptors is more than a routine task. It calls for human effort, skill, and time. These requirements, plus the costs of computers and telecommunication, are constraints on the widespread adoption of automated job matching. In 1984, 16 States were using job-matching systems that were at least partially automated in at least some of their labor market areas. For their job-matching systems, as for their job banks, some offices still used courier deliveries instead of direct computer communications.

Although nearly every State has job banks that are at least partially computerized, fully automated job order and job-matching systems are still the exception. Missouri provides an example of such a system. All 48 local ES offices within the State, and 12 more in Kansas and Illinois, are linked by microwave or land lines to the State Employment Security Agency's mainframe computer. Current information about applicants and job orders is fed into the system throughout the day. When a local office refers an applicant, this information is entered into the system; when the desired number of applicants (determined by the employer) has been referred, that fact instantly shows up on all the State's ES computer terminals.

For 20 years, Congress has expressed a continuing interest in creating a nationwide job bank and job-matching program within the national ES system. Both CETA and JTPA authorized the Secretary of Labor to establish a computerized national program, using electronic data processing and telecommunication as much as possible. The Interstate Job Bank, developed by the New York State labor department for the U.S. Department of Labor, and operating out of Albany since July 1984, has made progress toward the congressional goal. Building on the Interstate Clearance System, which had been established a few years earlier, the interstate bank listed 44,700 job openings in 1984—up from 1,500 per year in the older system.

The Interstate Job Bank is not a complete, fully computerized interstate clearance system. The bank's coverage is deliberately limited. State and local ES offices are asked to select job orders that have remained unfilled for a certain number of days, are in certain hard-to-fill professional and technical occupations, and are above a specified salary level. The rationale is that these kinds of jobs have a national market; the purpose of the interstate bank is to serve people considering relocation, and lower level jobs are not very likely to attract such people. It is argued, moreover, that most blue-collar and clerical workers without special skills do not usually consider relocation. Within the guidelines suggested by the U.S. Department of Labor, each State ES system has discretion over which job orders to report, at what time and by what means, and also when to remove them from the bank's listings.

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[48] Sources for material in this section include David W. Stevens, "Public- and Private-Employment Agency Roles in Providing Labor Market Information and Job Search Assistance: Past, Present, and Future," contractor report prepared for the Office of Technology Assessment, August 1984; Linda LeGrande, Library of Congress, Congressional Research Service, "The National Job Bank System," March 1985; and information provided by the U.S. Department of Labor, Employment and Training Administration.

The Interstate Job Bank has no job matching feature. This was dropped on the grounds that it duplicated services offered at the State and local level. Finally, the system is by no means fully automated. In 1985 only five States outside of New York sent in job orders by telecommunication; the rest used the mail. Most send computer tapes, but seven still send paper copies. Nearly all States receive the bank's listings back by mail, on microfiche cards (three receive computer tapes). Except for local ES offices in New York State, only Nevada has two-way telecommunication links with the Albany center. The turnaround time for most States, allowing time for mail deliveries and updating the listings, is 8 to 10 days. The one-way telecommunications link that five States now have with the bank allows a turnaround of as little as 2 or 3 days. With Nevada's two-way link, same-day communication is possible.

In proposals to improve the Interstate Job Bank, two specific issues are involved: 1) faster communication, so that job orders are listed quickly and removed quickly when the jobs are no longer open; and 2) broader coverage. More fundamentally, questions of improving the national job bank relate to its central purpose, which is to help workers move from places where they cannot get jobs to places where they can. How much can improvements in the interstate system contribute to this goal?

Technologically, it is feasible to make the Interstate Job Bank both comprehensive in coverage and instantly interactive. An important consideration, however, is matching technology with the most likely needs and uses. The main argument against a comprehensive Interstate Job Bank is that many of the job orders flowing into ES offices are for low-pay, low-skill jobs, and that few clients would be interested in applying for these jobs in distant places. Professional and technical hard-to-fill jobs that might have a national market are already entered into the Interstate Job Bank (though not instantaneously). However these jobs may not attract workers considering relocation either, since the jobs are often hard to fill because their pay is relatively low.

The argument on the other side is that many blue-collar and less educated workers have in fact chosen to relocate when given practical help in getting jobs at the other end, including financial help with out-of-town job search and moving expenses. In a pilot project conducted by the ES system from 1976 to 1980, blue-collar workers took advantage of these kinds of relocation assistance in large numbers; 38 to 44 percent relocated, compared to only 13 to 16 percent of professional workers taking part in the project (ch. 6 provides details). The pilot project was conducted in one geographical region (the southeast), not nationwide, and 80 percent of the relocations were within that region. Some other relocation projects that succeeded also involved moves within a region.[49] These results suggest that computerized exchange of job bank information might proceed by steps, first within States, then among neighboring States, and finally, if it seems desirable, nationwide.

From the standpoint of technology, the upgrading of State systems is a necessary first step. Statewide job bank systems vary a great deal in degree of automation, and the existing systems are not always compatible. If more States develop fully computerized systems, and if some degree of commonality is designed into all the systems, communication among them on job openings and qualified applicants could be accomplished in several ways. For example, each State system could be available for electronic query by an office in another State or, at a more sophisticated level, selected systems could be linked by networking. These intermediate steps, less complex and costly than a fully interactive national system, might still prove a practical, effective help to workers considering a move.

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[49] See, for example, the discussion of the relocation of Armour meatpacking plant employees in the 1960s, ch. 6.

In a time of general budgetary stringency and reduced ES budgets, it may be questioned whether State ES agencies will allocate enough funds to automate or revamp their statewide job bank systems. Congress might choose to appropriate funds for this purpose from the trust fund account that supports the State employment systems. One bill in the 99th Congress (H.R. 1036) would provide $50 million each year for 4 years for the purpose of fully automating State job bank and job-matching systems.

No one has made a detailed estimate of the costs either of a comprehensive, computerized interstate system or of an intermediate system. Complete costs would include not only the hardware (computers, terminals, and telecommunication lines), but also software systems and staff time for training, operation, and maintenance. In 1984 the Data Processing Committee of the Interstate Conference of Security Agencies estimated that the costs of bringing all State employment security data-processing equipment up to date would be about $241 million.[50] This figure covered only the costs of modern mainframe computers, desk terminals, and disk technology, but not telecommunication lines, software, or staff time.

A more optimistic indication of the costs of upgrading the automation of State systems comes from Missouri, which has a fully automated system. Officials of the Missouri Employment Security Agency report that the agency borrowed $1.6 million from the U.S. Department of Labor in fiscal year 1984 to upgrade their system's hardware. The State expects to pay back the loan within 4 years, mostly from savings on operation and maintenance of the up-to-date equipment. Missouri has about 2.4 percent of the U.S. labor force; thus according to the Data Processing Committee's estimates, upgrading the Missouri system might have been expected to cost about $5.6 million, not $1.6 million. Without a detailed cost study, it is not possible to resolve the apparent discrepancies in these figures.

Altogether, understanding of both the costs and benefits of a broader, more fully automated exchange of job bank information among States is limited. A study of these costs and benefits, including a consideration of several technical options for linking State systems, is needed as a reasonable basis for decisions on upgrading the Interstate Job Bank.

Other applications of new communication technology, besides automated job banks, have been suggested to improve ES service to clients and possibly to save staff time as well. For example, one State administrator is exploring the use of telephone recordings combined with a redialing system, to reach clients outside of regular office hours with news about job openings. (The U.S. Internal Revenue Service and catalog order firms are already using this technology.)

Labor Market Information

Much has been said about the difficulty of forecasting the demand for occupations as a basis for planning education and training.[51] In fact, in many States it is difficult to find good information even about current openings in local labor markets. CETA and JTPA both directed the Secretary of Labor to develop current employment data, by occupation and industry, for the Nation, States, and local areas; and Governors were given responsibility for overseeing and managing statewide information systems on labor markets and occupational supply and demand.

The weakest element in this information system is detailed, up-to-date estimates of occupations in demand in local labor markets. The ES job banks do not provide it, because they generally contain only a small portion of the jobs that are available in their areas, and low-pay, low-skill jobs are overrepresented. Potential beneficiaries of better information on occupations in demand are individual workers looking for jobs or considering retraining, JTPA project staff, Private Industry Councils, State economic development planners, and the ES offices themselves.

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[50] Interstate Conference of Employment Security Agencies, Data Processing Committee, "A Report on the Data Processing Financing Needs of the Employment Security System" (Washington, DC: ICESA, 1984).

[51] Ch. 8 discusses the Bureau of Labor Statistics system of occupational forecasting.

Some States do a good job of providing estimates for occupations in demand in local areas. State Employment Security Agencies (SESAs), which administer statewide ES systems, routinely collect a great deal of labor market information to meet the data needs of national programs. Under the technical guidance of the Bureau of Labor Statistics (BLS), they amass data on local unemployment rates, insured employment and wages, levels of employment and earnings by industry, and occupations within industries, much of which is used to produce national employment estimates and occupational forecasts. Box 5C summarizes the purposes and content of these four Federal-State cooperative programs.

Some States collect extra occupational data to show in more detail the patterns in local industries. Putting together industry and occupational data, SESA analysts are able to form a rough picture of which occupations are growing, static, and declining in the State and in some local labor markets. The same data can serve as the basis for State and local projections of occupations in demand. According to BLS officials, about 20 States provide reasonably current, detailed estimates of occupations in demand for at least some local areas. In the States that do not, a principal difficulty is lack of funds and expert staff to analyze the data that are available. With the cuts in funding and staff for ES systems since fiscal year 1982, some States have chosen to allocate fewer resources to research and analysis divisions, thus weakening their ability to provide local labor market information.

State and local labor market information may now be in jeopardy for another reason. The BLS has announced plans to give the Occupational Employment Survey (OES) lowest priority among the four Federal-State cooperative statistical programs, partly because the data are of greater interest to States than to the Federal Government.[52] The Administration wishes to reduce Federal support for local labor market information that is not directly needed for national purposes, such as determining eligibility or fund allocation for Federal programs like JTPA, or producing national labor force statistics. JTPA states, however, that the Secretary of Labor "shall develop and maintain for the Nation, State, and local areas, current employment data by occupation and industry, based on the occupational employment statistics program."[53] The Administration also proposed a cut in the Federal Government's small program of local planning grants to States, covering a broad range of needs for local labor market information. In fiscal years 1984 and 1985, funding for these grants was $7.3 million. The 1986 budget proposed $4.3 million for fiscal year 1986, and Congress appropriated this amount.

Some JTPA projects seek information on occupations in demand by commissioning surveys of local employers to determine their recent hiring patterns. The results may be more or less useful depending on the sophistication of the survey. Many projects use performance-based contracts, which put the responsibility for knowing what kinds of skills are salable on the trainer.

A new idea for improving information about local occupational demand is under development in Colorado and is attracting interest from several other States. Employers in most States are already required to file quarterly reports for unemployment insurance purposes, showing the number of their employees at the beginning and end of the period and the wages paid the employees. The reports also identify the employer's detailed industrial classification. When data from the reports are aggre-

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[52] U.S. Congress, House Committee on Government Operations, *An Update on the Status of Major Federal Statistical Agencies, Fiscal Year 1986*, 99th Cong., 1st sess., a report prepared by the Congressional Research Service (Washington DC: U.S. Government Printing Office, 1985), p. CRS-38.

[53] Job Training Partnership Act of 1982, Sec. 462(a).

Box 5C.—Federal-State Cooperative Labor Market Information Programs

All the State Employment Security Agencies collect data, under the supervision of the Bureau of Labor Statistics (BLS, U.S. Department of Labor), which are needed for four national labor market information programs. Funds for collection and analysis of the data come partly from the Unemployment Trust Fund, which is supported by employer-paid taxes, and partly from general appropriations.

- **Current Employment Statistics (CES).** Every month, over 195,000 business establishments, with more than 35 million employees, voluntarily provide payroll reports to State agencies on employment, hours, and earnings of their employees. The CES covers nearly all wage and salary employment in nonagricultural establishments, by industry (3- to 4-digit SIC code detail) and geographic location. The State agencies mail the same form to each establishment each month, so the respondent can compare the current month's figures with the last month's, for accuracy and comparability. The States use the reported data to prepare State and area series, and also send the data to BLS, to be used in the national data series. The flash gross national product estimates are based on the CES, and the program provides employment and earnings estimates for many industries and regions within a few weeks of the date of the reports. Occupations are not included in this series. In fiscal year 1985, the CES program had a budget of $17.9 million.
- **Insured Employment and Wages.** State unemployment insurance laws require all covered employers to file quarterly reports on numbers of people employed and wages paid, by detailed industrial classification (4-digit SIC code). In 40 States, employers must report the period of employment and earnings for each invidual employee by Social Security number; in the other 10 States, employers may submit employment and earnings totals. Individual employer reports are confidential, but the data are aggregated to produce a picture of employment by industry and region. In some States, analysts use these aggregated reports to supplement the CES data, which may lack detail for some local areas. The employers' quarterly reports, like the CES, do not include occupational titles or classes. Federal funds for this program in the 1985 budget amounted to $13.1 million.
- **Local Area Unemployment Statistics (LAUS).** Under several Federal laws, including the Job Training Partnership Act and the Public Works and Economic Development Act, benefits to different States and areas are determined in part by local unemployment rates. The national statistical program that estimates the employment status of American workers each month, and many personal and occupational characteristics of people both in and out of the labor force, is the Current Population Survey (CPS). CPS is not one of the Federal-State cooperative programs; it is conducted for the Bureau of Labor Statistics by the Census Bureau and is based on a sample of about 60,000 households. For 10 populous States and two metropolitan areas (Los Angeles-Long Beach and New York City), the CPS sample is large enough to provide reliable monthly estimates of the local labor force and unemployment rates. For the rest of the States and some local areas, labor force and unemployment estimates are derived from several sets of data, including the monthly CES establishment survey and current unemployment insurance claims. The LAUS budget was $8.9 million in 1985.
- **Occupational Employment Statistics (OES).** In this cooperative program, approximately 500,000 employers voluntarily report on the occupations of their employees, by industry (2- and 3-digit SIC code). Industries are surveyed on a 3-year cycle, manufacturing industries one year, wholesale and retail trade the next, and services the next. OES results show the number of workers in about 800 occupations by industry, for the Nation as a whole, for the States, and for some local areas. OES forms part of the basis for the projections BLS makes of employment in various occupations. In order to provide detail for State and some local labor markets,

the OES sample is very large, covering all employers of over 250 people, and about half of all U.S. employment. A sample of about 150,000 would suffice for national estimates; a larger sample of 365,000 is needed for State estimates. About 20 States have enlarged their statewide samples, in order to get more detail on local labor markets; the States pay for these additional surveys of about 135,000 employers. Currently, Federal funds pay for surveying the 365,000 employers needed for the State estimates, but BLS officials have announced that the sample size may be cut in 1986; OES has been given the lowest budget priority of the four cooperative labor market information programs. The Federal part of the OES budget in 1985 was $5.8 million.

gated and compared across quarters, they can show hiring flows by local area and industry—but not by occupation. In the Colorado pilot project, the employer is asked to add occupational titles for all employees. Thus, if the project succeeds, the raw data will be available for showing quarterly hiring flows not only by industry and locality, but also by occupation.

The technical and financial difficulties of this kind of project could prove formidable. The first hurdle is that some employers report only for central offices, not for branches. More fundamentally, employers might find it very troublesome to classify their workers' occupations by title, which could at the least delay submission of UI reports and taxes. The request for such detailed reports might also erode employers' willingness to respond to long-established surveys sponsored by BLS for national purposes, most of which rely on voluntary cooperation. The costs to the States of aggregating and analyzing the data from millions of employers might be high enough to exceed the benefits of this procedure considerably. However, many analysts and managers in the employment and training field are interested in testing the idea, because the potential benefits are substantial.

Some of the demands from vocational educators, employment and training managers, and Private Industry Councils for more or better occupational information concern forecasts more than recent or current data. Occupational projections, like other forecasts, are uncertain by nature. Their value quickly diminishes with the number of years they try to look ahead. Recent, detailed information on hiring in local labor markets is of immediate use, however, and can also keep short-term projections up to date. Given a choice, policymakers might want to spend scarce funds more on collecting and analyzing current data than on constructing sophisticated models for projections.

NON-FEDERAL PROGRAMS

In the late 1970s and early 1980s, before JTPA, there were a few dozen State, local, and private displaced worker projects, usually supported by some Federal funds.[54] Many of these non-Federal projects have by now run their course or have been folded into JTPA projects. A few of the larger statewide and nationwide programs still exist independently, sometimes contributing funds to individual displaced worker projects in combination with JTPA, and sometimes providing a different kind of service than JTPA does.

In addition to their supplementary role in funding services for displaced workers, non-Federal job training programs are often designed for related purposes: 1) retraining active workers, both to avoid layoffs and to help keep firms competitive; 2) underwriting the costs of training the initial work forces of new and expanding businesses, to encourage economic development; 3) providing community or State government assistance (e.g., guaranteed loans or technical assistance) to firms that are in trouble and in danger of closing, to avoid worker displacement. Some programs undertake all of these activities, and one activity may merge into another—often there is little distinction between them.

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[54] For a brief summary of some of these projects, see John A. Hansen, Andrew Martin, and James Maxwell, "Retraining Displaced Adult Workers for Jobs in the 1980s and 1990s: A Review of Past Programs, Current Proposals and Future Needs," contractor report prepared for the Office of Technology Assessment, August 1983.

Supplementing the Job Training Partnership A

The largest of State programs to assist displaced workers is California's Employment Training Panel (ETP). Founded in 1982, it has about $55 million a year to spend for retraining workers who are unemployed and collecting UI benefits, or have exhausted UI and are still out of work, or are in danger of losing their jobs and going on the UI rolls. The source of the funding is a small tax imposed on employers who pay unemployment insurance, and are not currently in debt to the UI system (positive reserve employers). At the same time the tax for ETP was imposed, the UI tax was lowered by the same amount.[55] (California's trust fund, unlike that of many States, has run a surplus for a number of years.)

In its first 18 months, from January 1983 through July 1984, ETP authorized training for 21,000 people. About 70 percent of these people were unemployed when they entered training, and many qualified for services under JTPA Title III. A number of displaced worker projects have received training funds from both the JTPA Title III and the California ETP programs; for example, an outstanding project in Milpitas, California, directed by a labor-management team at the site of a closed Ford assembly plant, received about $2 million from each. (See ch. 6 for a description of the Ford-United Auto Workers project at Milpitas.)

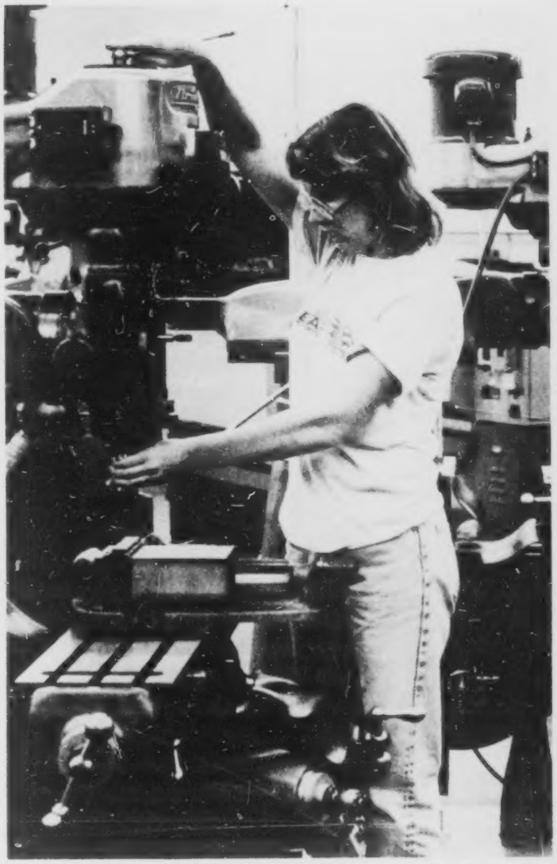

Photo credit: California Employment Training Panel

The California Employment Training Panel provides retraining both for displaced workers and for active employees who need training to avoid displacement.

With its annual budget of $55 million, ETP is not a supplement to JTPA but is far larger. California received a formula allotment of $7.9 million for its Title III program in the 9-month transition year (the equivalent of $10.5 million annually). Nor is the ETP program a duplicate of Title III. ETP strongly emphasizes the retraining of active workers to prevent displacement and the use of job training to promote economic development.[56]

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[55] Under current Federal and State laws, money collected by UI taxes cannot be diverted but must be used for UI benefits. Legally, the ETP tax is not a diversion, but the UI tax collection system is used to collect it.

[56] Information on ETP is drawn from The Employment Training Panel, *Annual Report 1984* (Sacramento, CA: State of California, 1984), ETP's monthly newsletters, and interviews with California State officials, institutional trainers, and directors of displaced worker projects.

The Employment Training Panel is structured for fast action with a minimum of red tape. Training projects typically begin with a telephone call from a business or training agency to one of ETP's three regional offices, followed by a meeting with ETP staff to discuss and outline the training. There are no application forms to fill out; ETP staff take care of the paperwork. When speed is important, a project outline and formal agreement with the Panel can be concluded in less than a month. In the early days of JTPA, when most State programs were not yet organized and long delays in approving project funds were common, this kind of fast, nonbureaucratic response was especially helpful in getting projects started.

ETP is strongly committed to training that leads directly to jobs. Employers who accept wage subsidies to provide on-the-job training must assure that they will keep the trainees on as regular employees, and training institutions offering classroom courses must place trainees in jobs related to their training, or they do not get paid. The panel asks for 100-percent placement, although some flexibility is allowed in practice. ETP also demands that training be for lasting jobs with a future, paying at least $5 per hour to start (more in higher cost areas).

ETP gives priority to customized training that prepares workers to perform specific jobs for specific employers who agree to locate or expand in California. According to the panel, California must offer this kind of service to compete with other States for new business and new jobs. For example, ETP training funds were used to attract Integrated Device Technology (a silicon wafer fabrication company) to Salinas, an area hard hit by factory closings. The company had considered locating its plant and 275 jobs in Idaho instead.

Some other States are showing interest in training programs funded by the equivalent of a small portion of the UI tax, in much the same fashion as California. Delaware was the first to follow suit, with its "Blue Collar Jobs Act," passed in 1984 and funded at $1.6 million a year. In Delaware's case, the new tax was enacted when the State finished paying back a loan to the Federal Unemployment Account. (Delaware's UI trust fund ran a deficit during the recession.) The special employer tax dedicated to paying back the loan was lifted just as the new tax, equal to a portion of the special tax, was imposed. The practical effect was a UI tax reduction for employers, while the State got funding for a new job-training program. As in California, most of the training funded by the program will be offered to unemployed or displaced workers, but one-quarter of the funds are reserved for "industrial" training, including the retraining of active workers.

Another source of supplementary funding for displaced worker projects is private funds, primarily the jointly administered management-labor training accounts provided in some union contracts. The largest of these are the nickel-an-hour and dime-an-hour funds negotiated by the United Auto Workers (UAW) in their national contracts with Ford and General Motors. Built by contributions of 5 or 10 cents for every hour worked by union employees, collections for the Ford-UAW fund amounted to about $10 million a year, and for the GM-UAW fund to approximately $50 million a year, in 1985.

Both programs operate their own retraining and reemployment centers, open to any laid-off worker with recall rights, and both have contributed to displaced worker projects based in plants that were closing. The nickel and dime funds, like California's ETP fund, were essential to giving several projects a prompt start. Similarly, a retraining fund provided by the agreement between the LTV steel company and a United Steelworkers of America union local in Midland, Pennsylvania, helped the Midland project for displaced workers get off the ground in 1983, while delays of more than a year followed applications for JTPA money.

Flexibility remains a principal advantage of these private funds. Because JTPA-funded services are open only to unemployed workers, someone in the midst of a remedial education or skills training course as part of a Title III

Photo credit: UAW-Ford Employee Development and Training Program

Flanking their instructor, two laid-off Ford workers are learning machining skills in a retraining course offered under the UAW-Ford Employee Development and Training Program.

project cannot continue once he gets a job. The nickel- and dime-funded programs serve active as well as unemployed displaced workers, and so do not suffer from this drawback. Moreover, the privately funded training centers are able to serve underemployed workers who have taken a stopgap job as well as those out of work. As the condition of the auto industry improved in 1984 and 1985, the emphasis in the employer-union training programs serving auto workers shifted to include active employees as well as the unemployed.

Retraining Active Workers

Programs that emphasize retraining of currently employed workers usually have several goals in view. The California Employment Training Panel, for example, emphasizes that retraining workers who are threatened with layoff can save the workers' jobs, save employers the costs of personnel turnover, and save outlays from the UI trust fund. The panel also states that a principal goal of active retraining is to encourage the adoption of new technologies, thus helping California businesses to stay productive and competitive. The effect, besides avoiding the immediate loss of jobs, is to make future employment more secure.

Through June 1984, 30 percent of the California workers benefiting from ETP training were active employees. To qualify for ETP funds, employers had to certify that, without retraining, their workers would be laid off and replaced with people who already had the skills that employers now required. Employers often cited the need for workers who could use computerized equipment and systems. According to an ETP report, at least half the job training the panel has funded involved some form of computer technology, ranging from office automation to wafer fabrication in semiconductor plants.

A number of ETP's active retraining projects serve small and medium-sized businesses. For example, 173 drafters working for 46 Los Angeles architectural firms were retrained in computer-assisted drafting and other automated processes, which cut the time required for producing architectural drawings by 50 to 75 percent. In another Los Angeles project, ETP helped to pay for the retraining of 148 employees of 15 apparel firms. These employees learned to operate computerized equipment that designs patterns, adjusts pattern sizes, and determines the placement of patterns on fabric. No other such training program existed in the Western United States. Without the training, employers reported, they would have pirated trained workers from the east coast, or they would have exported work overseas to low-wage countries. Either way, current employees would have lost their jobs.

Large businesses are also taking advantage of ETP-funded training. The Hughes Corp., California's biggest single employer, used ETP funds to retrain 990 workers, some of them current employees in danger of layoff, some former workers eligible for recall, and some new hires, to operate a sophisticated new inventory control and production management system. So far, the largest of the ETP-aided projects for retraining active workers is $5 million of assistance to the Bank of America. The bank is closing branch offices and plans to retrain 2,000 former tellers, operations assistants, and clerical workers for such jobs as special loan officers, personal banking officers, and computer-banking assistants.

Some uneasy questions arise about the use of public funds by large, financially healthy firms to train their workers. California ETP staff argue that many firms adopting new technologies would find it simpler and cheaper to replace current workers with newly hired people who have trained themselves at their own expense, and that ETP retraining saves the financial and emotional costs of displacement. Moreover, the availability of ETP funding for training allows firms to spend more for investment in capital equipment, thus improving their competitive position. In any case, since the ETP program is funded directly and solely by what amounts to a portion of the UI tax, paid by employers, the panel believes that it is appropriate to support any training that reduces UI-covered unemployment, current or potential.

Altogether, the public share in retraining of active workers is minute compared to the private. As chapter 7 discusses, spending by employers for formal training and education of their employees probably amounts to at least $10 billion per year and possibly much more. Informal training in the workplace, while almost impossible to quantify, is certainly of great importance as well. Public assistance for preventive retraining, mostly funded by States, probably adds up to no more than tens of millions per year, compared with the billions spent by employers. Clearly, the public sector cannot take the place of the private in this activity. It is the private sector that now provides, and will continue to provide, by far the most retraining of current employees that a changing and competitive economy requires.

Private programs such as the nickel and dime funds are structured ways of obtaining employer-funded training for currently employed blue-collar workers. For the union, a principal goal of the retraining programs for active workers is to bolster job security. For example, the 1984 UAW-General Motors contract calls for a job bank, supported by the dime fund, that will provide retraining and General Motors employment for workers whose jobs are lost due to technology or productivity improvements or to outsourcing (purchase of auto components abroad). This contract provision does not apply to jobs lost because of changes in consumer preference. People assigned to the job bank may be trained to serve in a roving team of substitutes, but in any case are supposed to be offered training to upgrade their skills. The job bank program has not yet had a real test. In mid-1985, auto sales and production were strong enough that only 41 people had been assigned to it, and they stayed only 2 weeks before getting new General Motors jobs.

In 1984 and 1985, nearly all the retraining of active General Motors employees that the dime fund supported was preparation for work in redesigned, modernized plants, not a response to elimination of jobs. For some employees—for example, the hundreds of workers assigned to two technologically advanced steering gear plants, or the skilled technicians and repair crew in assembly plants—the retraining is technical and fairly demanding. For others—for example, assembly line workers in the modernized Pontiac, Buick City, and Hamtrack assembly plants—much of the retraining consists of a 3-week course emphasizing team building, learning to trust fellow workers, and understanding the importance of quality. For those who need it, short courses in remedial or brush-up education in reading and math is offered. A key element in the success of the attitude training received by assembly line workers, stressing the connection between the worker's own welfare and the success of the product in the marketplace, appears to be the joint union-management administration of the program.

Another privately funded national program for retraining active workers was negotiated in a 1983 contract between AT&T and the Communications Workers of America. In anticipation of rapid technological change in the telecommunications industry, the contract called for the company to spend up to $36 million over 3 years for retraining employed workers. With the breakup of AT&T, the regional Bell companies as well as AT&T itself have taken over the training obligation.

In each of these companies, a labor-management advisory board approves training that it believes will help the employees fit into other company slots, as jobs and the organization of work evolve with changing technology—or, failing that, will help them find other jobs in the local economy. In 1985, thousands of AT&T and Bell employees took advantage of training. The Northwestern Bell joint advisory board, for example, approved training in individually selected community college courses, and 3,300 (25 percent) of employees signed up. The Bell South board emphasized correspondence courses, in subjects ranging from basic math and English to typing, business-letter writing, algebra, and digital electronics. Some 5,000 employees enrolled. Of 76,000 nonmanagerial employees of AT&T's communications division, 10,000 were taking home study courses in mid-1985, chiefly in electronics, accounting, computer-related skills, and arithmetic.

The joint advisory boards responsible for framing the training programs have emphasized the importance of improving broad, generic skills, and many employees are seeking this kind of training. When it comes to more specific technical skills, the advisory boards have little to go on. They have received relatively little information from the company managements on the jobs and skills expected to be in demand in the future, partly because union members have complicated bumping rights based on seniority, and it is hard to foresee what jobs will be open. Also, some companies consider information on their future job skill needs proprietary. As for employment outside the companies, the advisory boards face the same difficulties many others do in finding readily available, detailed information on job demands in the local labor market. To anticipate what jobs will be in demand in a few years is still more chancy.

The company-provided retraining did not extend to workers who lost jobs in the largest layoff in AT&T's history—the cutback of 24,000 of 117,000 jobs in the company's Information Systems division, announced in August 1985. AT&T did provide reemployment assistance, however. Besides offering ex-employees help with resume writing and job search skills, the company set up a central labor exchange information program with a free long-distance telephone number. Employees were asked to list their job skills and interests, and employers to list job openings. The initial response from employers seeking skilled employees was brisk; some 1,700 employers listed nearly 6,000 job openings in the next few days after national advertisements publicized the information exchange. The company planned to keep the exchange active at least through the end of the year.

Comunity and Government Assistance to Prevent Plant Closings

Plant closings and large labor force shifts are an inevitable part of economic growth and change, an aspect of the "creative destruction" of capitalism. This does not mean, however, that every threatened plant closing is unavoidable. In some cases, troubled companies are able to adopt effective strategies to enhance their competitiveness, with or without public assistance, and thus avoid the necessity of closing down. Even though the strategy for survival may involve sacrifice, such as trimming the work force, the massive worker displacement and community distress of a complete closing is averted.

Some firms, because of technological obsolescence, strong foreign competition, loss of product demand, or plain poor management have little chance to survive. In others, the changes required for survival are so far reaching, and time and resources so limited, that closing down is the only reasonable option. Efforts to keep these firms in business and save jobs will, in the long run, be wasted. Not all decisions to close down a firm are clear cut, however. The reasons for resorting to a shutdown are various, and some are more compelling than others. Some firms have reasonable prospects for long-term success if they can weather a short-term crisis and at the same time do what is necessary to enhance their long-run competitiveness and profitability.

"Doing what is necessary" often means the loss of jobs. Restoration of a firm's competitiveness often depends on improving productivity, that is, achieving more output per hour of labor. Unless sales rise enough to compensate, saving the company costs some jobs—but not as many as if the company went out of business. For example, in 1974 the Japanese company Matsushita bought Motorola's money-losing Quasar operation, which made television sets. Matsushita invested heavily in labor-saving equipment and also moved some of its operations to Mexico, where wages were lower. At the same time, the company redesigned the product and reorganized work to improve quality and encourage employee participation. With all this, some jobs were lost. Yet if the company had failed, several thousand more U.S. workers would have lost their jobs.[57]

Because local communities often have a large stake in the survival of a threatened plant, they may become involved in efforts to save it. State or Federal Government agencies may also be drawn into the efforts. Public or community agencies considering this course will make wiser decisions if they first size up the reasons for the closing and the longer term prospects of the firm. The following questions are among the key considerations.

Is there enough time? Early detection of problems so that there is time to adopt a corrective strategy is essential. Also, both management and labor must clearly recognize that short-term measures (e.g., temporary work sharing) will seldom be effective unless they are combined with a long-term strategy to improve the company's competitive position. Often, it takes several months to conduct a feasibility study just to determine whether there really are practical alternatives to shutting down, and several more months may be needed to negotiate the necessary changes.

Are there realistic prospects for profitability that are likely to attract other investors? Some modestly profitable plants are slated for closure because they do not provide the rate of return that meets the goals of corporate managers or stockholders. These plants may be good candidates for acquisition by other investors, although in some cases the parent company will not want to sell out to a potential competitor. Other firms may have reasonable prospects for profitability if capital is invested, costs are cut, or management is generally improved. More rarely, companies may have the potential to convert to a different product line with better prospects for profit, if the physical plant and employee skills are suitable for the new product.

Are both management and labor willing to make sacrifices to create a more efficient, productive, and profitable plant? Often, successful turnarounds depend on reforging relationships between labor and management, with give and take from both parties in devising an effective plan of action. Management has to be able and willing to commit capital funds to a risky endeavor, and often to share some decisionmaking power with labor. Long-term wage concessions may be required of both managers and workers, and labor unions may have to accept changes in work rules, occupations, and staffing.

Communities can sometimes play a critical role in helping to save threatened plants. Their contribution may be in the form of encouraging labor and management to work together for the company's survival, finding alternative investors or new owners, providing training for the work force in a modernized plant, or upgrading public facilities or services. Even when the prospects for saving plants look favorable, communities also need contingency plans for assisting displaced workers. The plant may after all close, or if it survives, it may need a smaller work force or a different kind of work force. A certain amount of displacement is likely in any event. Some communities have permanent local organizations that can undertake these responsibilities. In others, less formal efforts are undertaken as needed, usually in response to specific plant closings.

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[57] U.S. Congress, Office of Technology Assessment, *International Comptetitiveness in Electronics*, OTA-ISC-200 (Washington, DC: U.S. Government Printing Office, November 1983), p. 338; J. A. Alic and M. C. Harris, "Employment Lessons From the U.S. Electronics Industry," in *Proceedings of the 2d International Conference on Human Factors in Manufacturing*, H. J. Bullinger (ed.), Stuttgart, West Germany, June 11-13, 1985.

Most States do not have specific programs to channel assistance to troubled industries or plants in danger of closing. Their efforts to help are likely to be ad hoc or directed more toward the general goal of economic development and job creation. A few States, including California, Massachusetts, and South Carolina, have established continuing programs to help firms and industries in distress.

Promoting Labor-Management Cooperation

A recent innovation, the Area Labor-Management Committee (ALMC) is intended to foster cooperative solutions to company-worker problems that may threaten the company's existence and the prosperity of the community. ALMCs have been tried most commonly in communities plagued by poor labor-management relations, where firms have closed or fled, and new ones cannot be attracted. Since the 1970s, a score of communities have established ALMCs.

One of the oldest and best known of these organizations was founded in 1970 in Jamestown, New York. At that time, this small manufacturing town (population 40,000) in the far western part of the State had entered a condition of economic decline, brought on in part by very poor relations between management and labor. After a major employer went out of business, the town's mayor (Stanley Lundine, now a member of Congress) convinced local business and labor leaders to form a voluntary, community-wide labor-management committee. Co-chaired by representatives from labor and business, the committee also includes the mayor, the city ombudsman, and someone from the Federal Mediation and Conciliation Service as ex officio members.

Jamestown's ALMC adopted a strategy of local economic renewal, attempting both to retain local firms and attract new ones. The committee offers a cooperative program to assist local industry, better labor relations, develop human resources, and improve productivity. A key element of the program is in-plant labor-management committees, which look for cooperative solutions to problems that affect the firm's ability to compete. The ALMC keeps the committees supplied with technical assistance from the local community college, consultants, and local and State agencies. One study credited the ALMC with saving 1,708 jobs from 1972 to 1981.[58] Many of these jobs were in plants that would have closed or relocated had productivity not improved. The same study concluded that ALMC had helped to create 2,500 new jobs in the community, many of them in firms that would not have located or expanded in the area, had the old negative image of labor-management relations persisted. In 1985, 12 in-plant committees were operating in Jamestown area plants, including 9 under ALMC sponsorship.

A modest-sized Federal agency employing the same approach as that of the ALMCs is the Division of Cooperative Labor-Management Programs, U.S. Department of Labor. Its mission is to foster joint efforts by labor and management to improve productivity and enhance the quality of worklife. Its assistance to business, labor, and public organizations includes information services, workshops, technical assistance, and provision of resource materials.

State Programs to Help Troubled Firms

Massachusetts is one of the few States with a permanent, established program to help troubled firms. Created by law in 1984, the State program includes several different services. One is the Massachusetts industrial service which, at a firm's request, offers help in improving outmoded technologies and poor management, or in searching for a new owner if necessary. Firms may take advantage of a consulting service which can develop an adjustment strategy to be followed by the present owner or, failing that, to serve as the basis for attracting a new owner. The industrial service is also authorized to assist communities hit by plant closings, either by looking for new uses for idled plants or by trying to attract new business (the more conventional economic development strategy). The service is also charged with developing an early warning system, identifying the kinds of industries that are vulnerable to plant closings and to significant losses of employment.

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[58] Christopher B. Meek and William F. Whyte, "Community Economic Revitalization: The Jamestown Model of Cooperative Labor-Management Problem Solving," in Gary B. Hansen and Marion T. Bentley, *Problems and Solutions in a Plant Shutdown: A Handbook for Community Involvement* (Logan, UT: Utah State University Center for Productivity and Quality of Working Life, 1981), pp. 291-308.

Another program created by the same law is a stabilization trust, the purpose of which is to provide "flexible high-risk financing" to troubled firms that are deemed economically viable. The financing is intended to make possible a change in ownership, or corporate restructuring, or a turnaround plan that could avert plant closure. The trust is designed to supplement financing by private sources and other public agencies, not to replace them. The program is new, and how it will work in practice has yet to be proven. The difficulty in such programs is evident: how to select companies that have a good chance of becoming productive and competitive, and to avoid wasting time and money on ones that do not.

South Carolina's Rapid Response Team shares some features with the Massachusetts program. The Governor established this coordinating body in the summer of 1983, to deal with the large number of textile mill and manufacturing plant closings occurring in the State. At first, the team was seen as a temporary recession measure, but in the fall of 1983 a task force of the Governor recommended making it permanent, to play a part in the State's strategy for economic development. The State Development Board was put in charge, with other State agencies responsible for education, training, employment security, and development financing also serving on the team. Additional agencies can also be tapped when needed.

The missions of the team are to identify problems related to plant closings and to coordinate State and local assistance when closings occur. Two specific goals are aversion (helping plants avoid closings when possible) and conversion (when the closing is inevitable, helping to convert the work force to new employment and the plant back to productive use).

The State Development Board has a central *clearinghouse* to collect as much early warning of plant closings as possible from such sources as local development boards and councils of government, chambers of commerce, banks, and local ES offices. When notified of an actual or probable closing, the team arranges a site visit. If its evaluation suggests economically sound alternatives to closing the plant, the team works with the plant management on an aversion strategy package that may include provision of business information, financial assessments, loans and tax incentives, assistance in research and marketing, and technological assistance, including retraining workers for jobs using automated equipment.

By mid-1984, the team had visited 12 plants threatened with closure, affecting 3,485 workers. One of the plants—Anderson Mills in the town of Anderson, employing 450 people—seems to have been saved through a combination of financial and management assistance. Two plants were successfully converted. The Racine Glove Co. in Manning and the Sunbeam small appliance plant in Denmark were both sold to new owners making similar products, and both are back in production. All 85 workers at the glove company were rehired. Employment at the appliance plant, formerly 250, was expected to reach 200 two years after the new owner took over.

Helping to Find New Financing or New Buyers

One of the strategies that States, local governments, and communities use to help troubled firms is to arrange financing for improvements that may pull the firm through. Community officials or local citizens sometimes serve as intermediaries in getting technical or financial assistance from State or Federal agencies. Rarely, local governments may themselves provide direct financial help or incentives to a threatened firm. If the current owner cannot or will not stay in business, community representatives may seek a buyer. Sometimes a local government serves as a middleman between a troubled firm and new investors or a new owner. When it works, this approach is very cost-effective for local taxpayers. Even after a plant has closed and the workers have been laid off, community and State action sometimes succeeds in finding a new owner to reopen the plant. In rural or isolated places, where one plant can make a critical difference to the economic life of a community, local leaders and government officials have compelling reasons to try persistently to revive the plant. Such an instance is described in box 5D.

Worker ownership of a failing plant is another option, much publicized but not very often accomplished, to avoid plant closure. Employee stock ownership plans are widespread in U.S. businesses (in part because of tax advantages conferred under the Employee Retirement Income Security Act of 1974 and its amendments), but the National Center for Employee Ownership knows of only about 35 instances of worker buyouts to avoid plant closings since about 1970. Because of incomplete reporting, the actual number of such buyouts may be twice as great, perhaps 70 cases, but this is still only about 1 percent of all employee-owned operations. State and Federal agencies on occasion offer some help in worker buyout efforts, sometimes by sharing the costs of feasibility studies to determine if worker ownership is viable. State assistance has not played a prominent part in most buyouts, however.

The largest and best known worker buyout so far was the one negotiated between the National Steel Corp. and employees at its Weirton, West Virginia, Steel Division in 1983. A year earlier, the company announced that it would consider employee ownership a viable alternative to its plans to gradually reduce new investments in the plant as a prelude to closing it. Consultants hired by the company and employees to explore the feasibility of worker ownership found that the long-term prospects for the company's steel products were favorable, on the condition that employees take significant wage cuts.

Pensions and benefits accrued under National Steel's tenure were another key negotiating point. If the plant closed while National owned it, the company's closure costs would swell to hundreds of millions of dollars for such items as early pension payments and severance pay. At the same time, workers were concerned that they could lose all benefits if the company failed after they took it over. In the final agreement, the employees accepted a 20-percent wage cut, while the company agreed to continue its pension and benefit obligations for 5 years after the buyout. During its first year as an employee-owned firm, Weirton made a profit of $60.6 million.

The Weirton worker ownership agreement depended very little on direct spending of government funds. The West Virginia Economic Development Authority provided $125,000 for an initial feasibility study, and two counties in the area contributed an additional $35,000. At one time, the city applied for a Federal urban development action grant to help with in-plant improvements, but its application was rejected.

LABOR POLICIES AND ADULT WORKER TRAINING IN THE UNITED STATES AND OTHER INDUSTRIAL DEMOCRACIES

Labor Policy

Government policies specifically designed to deal with labor adjustment are relatively new. In most industrialized countries, active (or selective) labor policies date only from the 1960s. Before that, governments relied on three kinds of policies to affect employment and unemployment: 1) general macroeconomic policy, 2) employment insurance and welfare, and 3) economic development policy. Adult training and retraining programs also existed for years in many industrialized nations, but only in the 1960s did the OECD countries begin to use these programs systematically to meet the employment needs of selected groups, regions, and economic sectors; that is, to make them a part of active labor policy. The active labor

Box 5D.—Community Action to Save a Maine Potato Plant

A textbook example of community efforts to find a new owner for a closed plant took place recently in Maine's Aroostook County. Unlike the rest of the State, this county has a persistently high unemployment rate. In October 1983, one of the county's largest employers, Potato Services, Inc., issued layoff notices to over 700 workers at its Presque Isle processing plant for french fried and frozen potatoes. A few days later, the firm's parent corporation filed in New York City to reorganize Potato Services under Chapter 11 of the Federal bankruptcy laws. It was the corporation's second such bankruptcy petition in 8 years, and the company still owed creditors from the first agreement. Hopes of keeping the plant open were faint, unless a new owner could be found.

The loss of the plant was a heavy blow to the region's shaky economy. Two nearby potato-processing plants had already folded within the year, and the State labor department figured that a total of 1,800 jobs were at stake in the closing of Potato Services, counting the ripple effects in the local economy. The plant had provided a guaranteed market for up to 20 percent of the county's potato crop. The closing was a further blow to Maine's potato growers, who had already seen their share of the national market for frozen potatoes and french fries drop from 24 to 7 percent in 15 years, in part because of Canadian competition.

Sentiment to find a new owner was strong. The Governor of Maine established an ad hoc committee to pursue alternatives; the Northern Maine Regional Planning Commission called on local officials, union and company representatives, the Maine Potato Council and Maine Potato Commission, and economic development officials to join in the search. The key was to find a buyer willing to make the large investment—estimated at $10 million—needed to make the plant competitive over the long haul.

The strategy was, first, to table all other plans for the plant while the search was on for a buyer and, second, to look for a buyer from outside the area. The reason for preferring an outside buyer was that, reportedly, the largest remaining potato processor in Aroostook County planned to take over the plant and use it for processing green vegetables, not potatoes. While this might be reasonable business strategy from the processor's point of view, it would leave the potato growers with only one major buyer in the county.

Western potato processors were believed to be good prospects, if they could be persuaded that the plant would help them expand their share of the eastern market. But while the search was just getting underway, there was a danger that the plant's fate would be sealed in a New York City bankruptcy court; the hearing was scheduled for January 1984. The Governor's committee undertook to delay the hearing. The firm's creditors—local growers, banks, and State and Federal financial institutions—were asked if they would hold off pressing for an early settlement, to allow time for the search to proceed. An important creditor, the State finance authority which had guaranteed loans for the plant, agreed to the "western buyer" strategy, and the court briefly postponed the bankruptcy hearing.

With this breathing spell, an Aroostook County delegation was able to visit potential western buyers. The J.R. Simplot Corp. of Boise made a successful bid, and the plant reopened for potato processing in mid-1984. Employment in the modernized plant is only about 350, half of what it was in 1982, but it may rise if the company's marketing strategy succeeds and operations are expanded. Meanwhile, Simplot has bought and will reopen another Aroostook County potato-processing plant, closed since 1982.

policies in modern industrial democracies center on three objectives: 1) developing human resources and adjusting the labor force to structural changes, with the goal of fostering economic growth; 2) improving the employment opportunities of marginal groups, thus contributing to social equity; and 3) ameliorating the trade-off between inflation and unemployment, by stabilizing employment during cyclical downturns and removing labor market bottlenecks during periods of growth.

Adult retraining and reemployment assistance is one of a range of policy tools that governments now use to deal with specific labor problems. The ways other industrialized countries have structured this assistance, and fit it into their broader labor policies, are highly varied. These varieties of experience may offer insights to U.S. policymakers, keeping in mind that not all foreign experience can translate easily into the political and economic culture of the United States.

For example, the combined classroom learning and apprenticeship in vocational skills that most German young people acquire in their high school years provides West Germany with an able work force, to the benefit of the nation's productivity and competitiveness. Japan's system of lifetime employment favors continued retraining of active workers, at least for the one-quarter or so of Japanese workers included in the system. Employers who are able to keep their workers and retrain them as markets and technologies change contribute both to their own and to the nation's adaptability and competitiveness.

The labor policies and adult training programs of two industrialized democracies have been selected for brief discussion here. The Swedish system has attracted notice as an example of a stable social partnership between business, labor, and government, with both full employment and business efficiency as major goals. Canada exemplifies a more laissez-faire approach, combined with a substantial commitment to training and adjustment programs for workers displaced by trade and technology changes.

Sweden

Sweden's retraining and reemployment programs and other labor measures are the largest and most costly in the world, accounting for about 5 to 8 percent of government expenditures in recent years, and 2 to 3 percent of gross national product. These programs typically provide services to 5 or 6 percent of the labor force in the course of a year. Although expensive, the Swedish system is considered well run and effective. To a substantial degree, it has met the three goals set for it: 1) facilitating structural adjustment; 2) keeping employment high while holding inflation down (i.e., stabilization); and 3) promoting social equity by giving job skills to as many citizens as possible.

Stabilization has been partially achieved, with more success in controlling unemployment than inflation. More than any other Western country, Sweden uses active labor policies to keep unemployment down. In 1980, for example, when the U.S. unemployment rate was over 7 percent, Sweden's was 2 percent. Sweden's annual unemployment rate never rose above 3.4 percent even in the depths of the 1980s recession, when the U.S. unemployment rate reached 9.7 percent and the average rate for Western European countries was over 11 percent. International comparisons are tricky, however, because Swedish policy deliberately provides government subsidies for wages, training, and public sector jobs to keep people off the unemployment rolls when private business activity is depressed.

Sweden's recent record of inflation control is only mediocre. In the decade 1971-80, the average annual rate of inflation in Sweden was 9.6 percent, a little below the average for Western European countries, but above the U.S. annual rate of 7.9 percent for the decade. As inflation moderated in the 1980s, Sweden stayed about even with the rest of Western Europe, but U.S. inflation rates were much lower (i.e., a 3-year average of 9.9 percent for 1981-83 in Sweden, versus 6.6 percent in the United States).

As a small, trade-dependent country, Sweden is conscious of the need to stay competitive internationally. The nation's labor policy is intended to help individual workers adjust to structural economic change, not to prop up declining industries indefinitely. Nonetheless, wage subsidies, which indirectly support declining industries, are a prominent part of Swedish policy.

The National Labor Market Board (AMS), an independent tripartite body that includes government, business, and labor representatives, formulates the broad outlines of Sweden's labor policy, under the guidance of the government and Parliament. All Swedish labor programs, including job training, placement, wage subsidies, relocation assistance, and job creation, are coordinated under AMS. AMS is also the only legal employment service in Sweden. This enables local AMS offices to gather a great deal of information about worker needs and job vacancies in their areas; at the same time they are part of a nationwide agency with ready access to job listings throughout the country. Despite the centralizing role of AMS, its local offices have ample discretion and can act quickly. The government-run adult training program in Sweden has the dual function of providing new skills and helping to reduce unemployment during downturns in the business cycle. Bottleneck training, directed toward preventing skills shortages, is also supported to a limited degree as an anti-inflation measure. The training centers, administered by AMS, provide courses to a large number of workers; approximately 1 percent of the 4.4 million people in Sweden's labor force are in government-sponsored training each year. Apparently, the training courses are well chosen and reasonably effective. About three-quarters of graduates have jobs within 6 months, mostly in the work the students were trained for, and dropouts are reported to be few.

The training courses are free and are open to adult workers who are unemployed, in danger of becoming unemployed, or hard to place. (Bottleneck training is open to employed workers.) The AMS Employment Service determines eligibility. Courses range in duration from 2 to 72 weeks, commonly lasting about a year, and are scheduled to admit students at frequent intervals. Throughout training, the student workers receive a stipend that approximately equals the unemployment benefits they qualify for. Workers in training are generally the less skilled and less educated and formerly held jobs in occupations for which there is declining demand. Remedial education is offered to those who need it before they begin skills training. Quite a few older trainees have no more than 6 or 8 years of formal schooling.

Other selective labor measures administered by AMS include special placement assistance, which is all that many displaced workers need. The Swedish system puts special emphasis on an immediate response, on the grounds that long delays between layoff and employment assistance hurt motivation and make successful retraining or placement less likely. Swedish law requires advance notice of impending layoffs of five or more workers, so that an early response is possible. Circumstances vary, but in a large layoff, the AMS Employment Service often moves into the workplace immediately, trying to match workers with job openings. For workers who do not find jobs, the service usually recommends either training or a subsidy to the firm, to encourage it to retain the workers at least temporarily.

Wage subsidies to employers, like government-sponsored training, are a major feature of the Swedish system. A third sizable element is counter-cyclical public employment. Altogether, 90 percent of Swedish labor program expenditures go to what are called active measures to combat unemployment, with 10 percent going to passive unemployment insurance and other cash assistance to the jobless.

The Swedish approach is in many ways a huge transfer program in which the employed pay taxes—at very high rates—that are used to keep other workers in a variety of training and subsidized labor schemes. Foreign analysts sometimes describe the extensive wage subsidies, training expenditures, and public sector employment in Sweden as masking what would be counted as higher unemployment in other countries. A different view—one which the majority of Swedes evidently share—is that the country's labor policies are more cost-effective and socially productive than leaving the workers to collect unemployment insurance. Wage subsidies, for instance, encourage companies to keep marginal workers at less cost to the government than paying full unemployment benefits to laid-off workers. Even when workers in training have no immediate prospect of jobs, because of recession, they are learning useful skills while costing the government only a little more than unemployment benefits.

The system has its limitations in treating all kinds of workers equitably. During the late 1970s, despite Sweden's low unemployment rate, the duration of unemployment for those without jobs was longer than in earlier decades. Also, since the late 1970s, unemployment rates have been considerably higher for younger and older workers (those in age groups 16 to 24, and 55 to 64) than for workers in the middle age brackets. In addition, some Swedish unemployment must be regarded as exported. Guestworkers from Finland and other poorer countries are returned home, or no longer are allowed to immigrate, when the demand for labor declines.

Indeed, a certain degree of inequity seems built into the system. There is a growing welfare gap between those who established themselves in the labor market and will get continuing protection and those who are not in this fortunate position. The latter are less likely to get good jobs, partly because the system is designed to protect those already employed. This arrangement also makes it harder for workers who dislike their current jobs to change them.

There is also concern in Sweden about the implications of the job-protection policy for structural adjustment to changing economic conditions. By 1980 the government and some analysts began to speak of the declining adaptability of job applicants and employers. Comfortable with staying where they were, workers showed an increasing preference not to move from their companies or regions. Employers, too, found it easier to accept wage subsidies and keep workers in old lines of business than to enter new activities. The 1980 Conservative government responded with new measures, including new grants to encourage more geographical mobility. Whether the present Social Democratic government will continue these measures, and whether they will have any real effect, remains to be seen.

Several observations can be drawn from the extensive Swedish experience with training, wage subsidies, and other active labor policies. First, a wide range of policies can be used to prevent and, when necessary, respond to industrial dislocation. Retraining is one option, not necessarily the most effective for all situations or individuals. Nor do all of the options involve subsidies. Some are simple but prompt measures to help displaced workers find new jobs, before layoff if possible. Other policies, including early retirement and agreements to transfer laid-off workers to other company plants, can be used to limit the number of workers facing dismissal.

Second, the Swedish experience suggests the value of considering alternatives to unemployment benefits as the main response to joblessness. In terms of society's interest in improving skill levels, and in terms of the dignity and productivity of the individual, simply putting people on unemployment may not necessarily or always be the best option.

Third, Swedish experience shows that bureaucratic does not necessarily mean rigid, inflexible, and wasteful. The Swedish system of training centers is run by a government agency, and it works. One reason it works is that business and labor are involved at all levels, particularly in identifying what kinds of training are needed. They provide valuable contacts, information, and support. AMS also has a unique source of current information in its network of employment service offices. Joining a comprehensive employment service with the authority to plan training, along with a mandate to adjust courses to changing clients and jobs, makes for a flexible and effective training system.

This leads to the complex issue of how much of the Swedish system could be successfully transferred to other countries, particularly to the United States. Clearly, the fact that Sweden is a small homogeneous country in which government officials are trusted helps make the system accepted and successful. So does the overwhelming public support for the goal of full employment, even if it means very high taxes and high government spending. Equally important is the genuine, if sometimes overstated, cooperation between labor and business, at all levels of society, which has existed for half a century. Related to this last point is the powerful political role of organized labor in Sweden. Eighty percent of Swedish workers belong to labor unions. Many of the work force reduction methods used in Sweden are inconceivable without very strong unions in all industries and very strong, prolabor laws concerning employee rights and prenotification requirements.

Very few of these supporting conditions exist in the United States. An attempt to emulate the entire Swedish system would surely fail. Some elements of the system, such as the government monopoly on placement services, are most unlikely to travel well from a small homogeneous country to a large, highly varied and individualistic one. A more practical approach is to select elements of the system—for example, commitment of extra resources to training during recessions, provision of individual effective counseling for displaced workers, and advance notice of and early response to layoffs—and tailor them to this nation's needs and constraints.

Canada

Canada has an active, varied labor policy. The Canadian approach is less a formal social partnership between government, business, and labor, on the Western European model, than a series of selective interventions by the national government to correct what are seen as deficiencies in the private market. The labor programs are meant to support a national policy of lowering world trade barriers, making Canadian industry competitive, fostering technological advance, and thereby promoting economic growth. Elements of Canada's labor policy include an extensive, well-funded job-training program for adults, with income support for trainees; wage subsidies and public sector job creation, especially in communities with heavy job losses due to structural economic change; and a small, flexible, highly efficient placement program for workers hit by plant closings or large layoffs.[59]

Canada's national government supports two kinds of job training for adults: tuition-free institutional courses, in community colleges and vocational schools run by the provinces; and industrial training, supplied by employers in plants and classrooms and paid for cooperatively by the employer and government. Both have the dual purpose of improving individual workers' employability and earning capacity and of meeting the skill needs of the labor market. As of 1979, studies of program results showed that 75 percent of trainees (institutional and industrial) obtained jobs after training, but only about one-half of these were in jobs for which they had been trained. With a change in the law in 1982, both parts of the National Training Program began to emphasize "critical skills" training, in occupations designated as nationally important and in which shortages are anticipated. This new approach tips the balance somewhat from the individual worker's needs to the nation's needs, but priority is still given in some training programs to workers who are considered disadvantaged in the labor market, including women workers and Natives.

In fiscal year 1983-84, the Ottawa government spent $1 billion on job training for adults (defined as people who are past the age of required school attendance).[60] With a national budget of $89 billion and a labor force of 12 million, this is a substantial sum. Some 277,000 people, about 2.3 percent of the labor force, participated—again, quite a sizable number, compared with approximately 1 percent of the work force who are in job training in both Sweden and West Germany.[61] The Canadian figure is probably somewhat overstated, because about 43 percent of the trainees were young people (24 years of age and under), a higher percent than in other countries. Nonetheless, job training for adults in Canada is impressive in its size.

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[59] Much of the material in this section was provided by officials of the Canadian Ministry of Employment and Immigration, including Allan Jacques, Director General, Labour Market Planning and Adjustment, and his deputy Blair Lopes; Pierre Leclerc, Director, Industrial Adjustment Service (formerly the Manpower Consultative Service); and Norman Allison, Director, Human Resources Development Branch, Ontario Region. In addition, see Abt Associates of Canada, "Evaluation Study of the Industrial Adjustment Service (IAS) Program," report prepared for Employment and Immigration Canada, Program Evaluation Branch, November 1984.

Despite a national policy favoring more reliance on industrial training, Canadian job training in 1983-84 was still quite strongly classroom-oriented. The great majority of adult workers starting government-sponsored training were in institutional training (231,000 people): nearly three-quarters were enrolled in vocational skills courses, some 20 percent in remedial education or language training, and the rest in some form of job readiness training. Almost everyone in full-time training courses received government-financed income support, either UI benefits (which can last as long as 2 years for trainees), or small training allowances, sometimes with supplements for day care or transportation. The number of people in industrial training was about 46,000—higher than in 1982-83 but sharply down from the 80,000 or so of recent years, probably because the continuing recession in Canada made employers unwilling to take on trainees.

The critical skills training program, which the government now emphasizes so strongly, has begun to grow. In 1984, 82 job titles were on the government list of "occupations of national importance." These received priority in government subsidies to training facilities as well as in assignment of candidates to industrial and classroom skills training. About 12,500 (27 percent) of the workers who began industrial training in 1983-84 were learning critical skills occupations, and the government devoted over one-third of its spending for classroom skills training to the designated occupations. By no means all the occupations on the list could be regarded as high-technology; the list included machinists, tool and die makers, welders, offshore drillers and derrick workers, millwrights, and chefs as well as robotics technicians and computer hardware specialists. Typically, industrial trainees in the critical skills program were high school graduates who already had jobs before training, and nearly all were men. In more traditional types of government-funded training, disadvantaged workers, unemployed people, and those threatened with unemployment get first chance, and about one-quarter of participants are women.

Canada has a variety of other labor programs besides job training. The free, nationwide system of Employment Centres, which make the assignments to government-supported adult training, is similar in many ways to U.S. Employment Service offices—including having private competition and having a relatively small share of available jobs in their job listings. The national government has recently targeted both regional economic and labor policies toward assisting communities seriously weakened by the loss of industries or plants. For selected communities, the Industry-Labor Adjustment Program offers special loans and grants to industries, encouraging firms to stay in the area or move into it. To workers, the program offers temporary public service employment (limited to 2 years), portable wage subsidies (transferable from one employer to another) for those over 40, early retirement for those over 55, and relocation subsidies, as well as training.

An outstanding Canadian program that targets services to adult displaced workers is the Industrial Adjustment Service, or IAS (formerly the Manpower Consultative Service). Since 1963 this small federal agency has offered several kinds of assistance to employers and workers in individual firms: placement assistance for workers displaced in plant closings or large layoffs; work sharing (part-time unemployment insurance) and technical assistance, to tide plants over a temporary crisis and avoid layoffs; retraining workers in plants undergoing technological change; training skilled workers for companies that are opening or expanding and that would otherwise face labor bottlenecks. About half of the IAS workload relates to plant closings and permanent layoffs.[62] This part of the IAS program is described in box 5E.

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[60] Government of Canada, Ministry of Employment and Immigration, *Annual Statistical Bulletin: National Training Program, 1983-84*, WH-3-488E, 1985.

[61] In previous recent years, participation in training was even higher, closer to 3 percent of the work force. Participation fell off during the recession because of a steep drop in numbers of workers in industrial training.

Canada's labor programs, while more extensive than those in the United States, still bear some resemblance to ours. There are differences: for instance, government intervention in particular industries and areas of social welfare is more common in Canada than in the United States. However, these differences are considerably less than those between the U.S. system and the systems of the Western European social democracies.

Canada's emphasis on training in critical skills is of particular interest. It is too early, only 3 years after the passage of the National Training Act which established the emphasis, to judge how it is working out. Already, it is clear that identifying what skills are in demand—let alone what will be in demand a few years hence—is no simple job. When the 1982 law was passed, some anticipated that the Canadian Occupational Projection System would be able to pinpoint the occupations in demand for the next 5 to 10 years by using an elaborate econometric model. But, not surprisingly, the Canadian researchers have not yet been able to provide such projections. What the training branch of the Ministry of Employment and Immigration actually does in designating demand occupations is to rely on information provided by its regional economists, including job order and unemployment data from Canada's 450 Employment Centres, information solicited from employers and labor organizations, and figures on how many people are already in training. Regional offices of the Ministry now make additions to and deletions from the national list, since it has become obvious that regional differences are considerable. Also, it is clear that many of the occupations in demand are quite traditional ones (e.g., chef and assistant cook) and are not all in novel high-technology occupations.

Another interesting point about the Canadian experience is that quite a large proportion of the adult work force is in free, full-time government-sponsored training, including remedial education in basic skills for those who need it. Training courses tend to be fairly lengthy (1 year is typical), compared with the average 15- to 23-week period spent by trainees in JTPA projects in the United States, and government income support is relatively generous. Nearly all full-time adult trainees in Canada have some form of support.

Finally, a point of practical interest is the positive example of Canada's IAS. At modest expense to the taxpayer (roughly $107 per worker served)[63] this small federal agency is able to give special, effective placement assistance each year to tens of thousands of workers hit by plant closings, even in plants characterized by poor labor-management relations. This is accomplished by efforts at the plant level to turn up jobs, without the use of a mandatory national job-listing service like Sweden's.

Canada's labor policies, unlike Sweden's, are not designed for the specific purpose of reducing unemployment during downturns in the business cycle. Despite its active employment and training policies for displaced and disadvantaged workers, and its program of special assistance to communities undergoing structural economic change, Canada's unemployment rate for more than two decades has usually been higher than the average for industrial countries, and somewhat higher than, but comparable with, the U.S. rate. (In the 11 years 1959 through 1969, the U.S. and Canadian unemployment rates both averaged about 4.8 per-

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[62] A detailed description of the IAS job placement program may be found in William L. Batt, Jr., "Canada's Good Example With Displaced Workers," *Harvard Business Review*, July-August 1983.

[63] If the contributions of the private as well as the public sector are included, IAS program costs per participant in 1982-83 were about $171.

Box 5E.—Placement Assistance for Displaced Workers: The Canadian Model

Anywhere in Canada, whenever there is a plant closing or layoff involving more than 50 workers, help in finding new jobs for the displaced workers is readily available from a small, unobtrusive federal agency, the Industrial Adjustment Service (IAS). Soon after learning that a layoff is imminent (usually within a day), IAS offers to establish a labor-management reemployment committee, whose job is to place the laid-off workers as promptly as possible—often before the layoff occurs. The committees cast a net through their communities, to area employers in similar lines of work, to more distant employers, and to cooperating unions. The strategy is to tap the hidden job market, the jobs that are never publicly announced but are filled by word-of-mouth.

From 1971 to 1981, labor-management committees formed with IAS assistance found 66 jobs for every 100 workers affected by the plant closings, usually within a year or less.[1] An exact count of the workers served per year is not available, but partial records indicate that IAS committees offered adjustment services to about 35,900 displaced workers in fiscal year 1982-83.[2] This is an impressive number, considering that in the United States, where the labor force is nearly 10 times as large, about 96,100 displaced workers were served in JTPA projects in the 9-month 1983-84 transition year (equivalent to about 128,000 in a full year); 132,200 were served in the 1984 (12-month) program year.

The IAS offer of help can be refused; in most provinces, participation is voluntary. Ninety-five percent of the time, the offer is accepted, and IAS is a participant in virtually all major plant closings. Its role is to facilitate, not to direct. It provides an independent chairman, whom the reemployment committee may select from a roster of experienced people (often retired businessmen). An IAS adviser may serve ex officio, but keeps a low profile; the committee is a labor-management team, not labor-management-government. IAS pays half the committee's costs, with the company usually picking up most of the other half, although the provincial government and employee groups may make contributions. In unusual circumstances, such as company bankruptcy, IAS pays for all costs. The costs have historically been low, about $10,000 to $20,000 per agreement. Typically, the committees finish their work and go out of business in about 1 year.

IAS is lean and flexible. With 66 field staff members and annual budgets in recent years of $6 to $8 million, IAS has helped to arrange 400 to 600 labor-management agreements per year.[3] These agreements cover other IAS activities besides placement services to laid-off workers, including responses to threats of layoff, adjustments to technological change in the workplace, and responses to other problems such as plant expansions and high labor turnover. In 1982-83, the IAS spent roughly $3.9 million for its services to workers displaced in total or partial plant closures. Additional private contributions brought the total funding for these services up to about $6.1 million. Per worker, the IAS portion of the cost was about $108; total spending, public and private, averaged about $171 per worker.[4]

Canadian officials attribute much of the agency's success to its nonbureaucratic style. Individual field officers have a great deal of authority to act on their own, without waiting for approval from superiors. A related feature is the prompt offering of services, as soon as a company gives notice of a layoff. Six of the ten Canadian provinces (including the most populous) have plant closing laws that require advance notice of layoffs affecting 50 or more workers, the notice being 8 to 16 weeks depending on the size of the layoff. The national government has a similar law covering certain classes of workers. In

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[1] In the recession year 1982-83, when Canada's unemployment rate was about 12 percent, placement rates were apparently lower. In one firm served by IAS, 721 of 791 workers received a notice of layoff, and 612 left the firm. Of those who left, 406, or 66 percent, got at least one job after layoff. But 17 months after layoff, many of these people had left their first, or even their second, reemployment job; of the 791 originally at the firm, only 439 were employed. See Abt Associates of Canada, "Evaluation Study of the Industrial Adjustment Service (IAS) Program," report prepared for the Employment and Immigration Canada, Program Evaluation Branch, November 1984.

[2] The IAS served approximately 133,000 workers in 1982-83, but agreements that dealt total or partial closures of individual plants covered 35,910 workers. See Abt Associates of Canada, op. cit., p. 83.

[3] This omits 25 temporary field officers engaged solely in arranging work sharing during the recession, and over $2 million for their salaries and administrative costs.

[4] This estimate is based on spending figures given in Abt Associates of Canada, op. cit., and additional information provided by officials of the Ministry of Employment and Immigration, Canada.

the provinces without advance notice requirements, employers often volunteer information to IAS about impending large layoffs, or IAS may attempt to collect information by word of mouth or by following the newspapers. These efforts are not always successful. However, in the majority of cases, the committee's work can begin before the layoffs start.

Traditionally, the committees have concentrated on prompt reemployment, not on training. They do not arrange or pay for training, nor do they offer counseling or relocation assistance. (These services are offered through Canada's free, publicly financed Employment Centres, and the national government pays for training tuition.) IAS committees can refer participants to Canada's extensive adult vocational training system, but in the past they typically have not. With the prolonged recent recession in Canada, when very few good jobs were available, interest in retraining has picked up. For example, after the closure of a General Electric turbine plant near Toronto late in 1983, 160 hourly employees registered with the labor-management committee for reemployment assistance. Initially, only one asked for retraining. By the following summer, 40 more were interested. Government-sponsored places in training courses are limited, but if all of the seats are filled, labor-management adjustment committees can sometimes succeed in getting funds for a few more, to meet the displaced workers' needs.

cent; from 1970 through 1981, the U.S. rate averaged 6.3 percent and the Canadian rate 6.8 percent.) However Canada was unusually hard hit by the recession of the 1980s and slow to recover. In the 3 years, 1982 through 1984, Canada's unemployment rate was between 11 and 12 percent—a worse record than that of the United States and many European countries.

As discussed in chapter 4, the relation between unemployment and displacement is not simple. Programs that help displaced workers get retraining or find jobs more quickly than they would on their own should have some effect on the unemployment rate; but this effect may be quite small compared with major influences on a country's employment situation from factors such as macroeconomic policy, trade policy, and the dependence of the country's economy on natural resources.

Chapter 6

Design and Performance of Displaced Worker Projects

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Chapter 6

Design and Performance of Displaced Worker Projects

OVERVIEW AND FINDINGS

Projects for displaced workers face the challenge of helping workers find new jobs as promptly as possible, with as little loss in earnings and job satisfaction as possible. Well-run projects help many workers achieve these goals more effectively than they can do on their own. The best of projects keep open a reasonably wide range of choice, adapted to local economic circumstances, but varied enough to suit the needs and abilities of different people.

The Job Training Partnership Act of 1982 (JTPA) is intended to foster flexibility and variety. The law leaves decisions on project design to the States and local service providers, and can be used to support a broad range of services, from finding job opportunities for displaced workers, to helping the workers improve their own job search skills, to offering vocational skills training in classrooms or subsidizing on-the-job training, to assistance in moving to a new area.

OTA has analyzed some of the more experienced displaced worker projects to illuminate what works best, what elements are less effective, and what issues are of most concern to policymakers. Of the lessons learned so far about good project design, most can be applied in projects funded under JTPA. Some, however, suggest new policy options.

Common Ingredients of Success

Some general considerations apply to most displaced worker projects, regardless of the details of their design:

- Displaced worker projects located in plants that are closing or undergoing mass layoffs and that are directed by labor-management teams can be highly effective. Their unique advantages are personal acquaintance with the workers and their abilities, and personal networks for turning up local job opportunities. Not many of these projects exist in the United States; those that do have special assets such as exceptional leadership in the plant. Although existing plant-based projects for displaced workers can receive JTPA support, the law provides no specific mechanisms to help establish them.
- The best time to start a displaced worker program is before layoffs begin. Although not every worker will take advantage of the program early, having it available is important to boosting morale, enabling workers to plan ahead, and offering training while workers are still eligible for the maximum amount of unemployment insurance (UI) or other forms of income support. Advance notice of plant closings or layoffs makes early constructive action possible. Whether State or Federal laws should require advance notice of plant closures is controversial. Some States have laws encouraging voluntary advance notice.
- Employers can make unique contributions to the effectiveness of displaced worker projects, especially if they provide plant space and staff for employment and training centers, before and after the plants close. Some employers have taken a good deal of responsibility for providing timely, effective services to their employees who are displaced in a plant closing or mass layoff. Employers' efforts appear to work best when they are undertaken jointly with labor, and especially when built on existing labor-management cooperation.
- Although plant-based projects, especially those that benefit from labor-management cooperation, can be very effective, they cannot serve all displaced workers. Many victims of displacement lose their jobs in small numbers in numerous small establishments, as ripple effects from larger layoffs and plant closings affect whole communities. For these workers, and for workers not yet served or placed when a

plant-based effort comes to an end, a continuing organization offering employment and training services is needed.

- Projects that offer a full range of services are most likely to meet the needs of the spectrum of displaced workers, not just a single group of those easiest to serve. Different emphases in program design are appropriate, however, in different regions and economic situations. In prosperous times and areas, many displaced workers may do well with only job search assistance, although some excellent opportunities may be open for workers who select training in new skills. During cyclical recessions, more workers opt for vocational training in an institutional setting (usually called classroom training), because jobs are too hard to find. In areas of long-term economic decline or in very limited labor markets, vigorous efforts to help workers relocate may be in order.

Issues in Project Design

- Retraining in new skills or a new occupation, long prescribed as the sovereign remedy for displaced workers, is not for everyone. For a substantial number of workers, however, training is the best avenue to a good job with long-run possibilities for advancement. In well-run programs, a sizable minority of displaced workers—perhaps 20 to 35 percent—are interested in and have the background for vocational skills training in a school or technical institute. It is not evident that displaced workers must all be retrained in high-technology occupations; many traditional occupations, such as automobile and truck repair or heating and air-conditioning work, are still in demand.
- Job search assistance can be very effective for large numbers of displaced workers and is relatively inexpensive. Many displaced workers, especially semiskilled manufacturing workers, have had only one job in their working lives, and can benefit greatly from training in job-hunting skills. Projects that help develop jobs—i.e., identify job openings in the local market that are not advertised or listed—are also very helpful to the displaced worker seeking a new job promptly.
- Very low reading and mathematical skills are a handicap to reemployment for a substantial number of displaced workers, possibly 20 percent. It is not easy to provide remedial education to displaced workers who need the most help in getting a new job, but a few exemplary programs have shown that it can be done.
- Few adult displaced workers can undertake full-time training without some form of income support. For most, UI lasting 26 weeks is the main source of support. Some training institutions have been able to devise effective courses that fit the constraints of workers' UI eligibility. However, many kinds of longer term training are effectively foreclosed for displaced workers who have no other source of income support than regular UI benefits.

Areas for Federal Action

Under JTPA, States have virtually complete authority to shape their displaced worker programs according to what they believe works best in their own circumstances. The areas in which Federal action may be most appropriate with regard to project design are:

1. helping to establish plant-based projects;
2. finding ways to encourage advance notice of plant closings or mass layoffs;
3. making it easier for projects to offer remedial education to those who need it; and
4. in cooperation with the States, considering effective ways to use unemployment benefits as income support for displaced workers in training, or to ease the transition for workers taking lower paid jobs.

INTRODUCTION

Experience with modern displaced worker projects is still quite limited. Few in this country have been in existence long enough to provide a good idea of whether they are working as intended, or whether some elements in them are more successful than others. But by putting together insights drawn from projects of the past, findings from the few evaluations of more recent projects, and observations of current ones, it is possible to sift out useful guidance to good project design. Of particular interest are findings that relate to government policies, and how they may help, or perhaps unintentionally hinder, the offering of employment and training services to displaced workers.

The findings discussed below are not conclusive: they are not based on irrefutable evidence. They are, however, something more than suggestions. They represent the collective wisdom of many experienced people, a few well-designed studies on what works best in helping displaced workers find productive new jobs, and early returns from the JTPA displaced worker program.

A Pioneer Project: The Armour Automation Fund

During the automation scare of the early 1960s, one of the best and most thoroughly documented efforts to retrain and reemploy displaced workers was the Armour Automation Fund. The product of collective bargaining in an industry noted for its stormy labor history, it established a cooperative tripartite committee made up of management (the Armour company, then the second largest U.S. meatpacking company), labor (the two unions representing the company's workers), and two impartial cochairmen (Clark Kerr, then President of the University of California, and George P. Shultz, then Dean of the University of Chicago School of Business).

From 1950 to 1965, Armour overhauled its operations nationwide, closing big old plants and opening smaller, leaner ones with modern equipment in new locations. Altogether, the company closed 21 plants employing 14,000 workers, and laid off almost half its workers. In 1959, halfway through, with nine plants employing 6,000 workers already closed, Armour announced plans to lay off 6,000 more workers and shut down six more major plants. At this point, in the course of negotiating a new labor-management contract, Armour and the two unions established the Automation Fund Committee. Armour supplied $500,000 for the committee's operations. Its duties were to study the problems of displacement and recommend solutions.

A 1966 study by Shultz and Weber summed up 5 years' research and experience of the Automation Fund Committee.[1] Twenty years later, the insights of this report have not lost their value.

Some major conclusions of the report:

- There is no single, simple approach to the problems of worker displacement. Different people have different needs. The adjustment program must provide a variety of options, including placement, training, transfer, and early retirement, together with careful and patient individual counseling.
- Advance notice of a plant closing or major layoff is a prerequisite for constructive action. Notice of at least 6 months allows time for recovery from the shock and then time for planning, choice, and action.
- Placement efforts should be on a special project basis; routine State Employment Service procedures are inadequate to handle the problems of mass layoffs.
- Workers with limited education can profit from retraining for occupations in demand; appropriate training can be found for most interested, motivated workers. Overly rigid screening can rule out good candidates.

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[1] George P. Shultz and Arnold R. Weber, *Strategies for the Displaced Worker* (Westport, CT: Greenwood Press, 1966).

- Workers in training must have adequate income support, from unemployment compensation, part-time work, or a combination of sources. Without adequate financial support, trainees will be forced to drop out before training is completed.

The report recognized that no program for the placement, training, or transfer of permanently displaced workers—however well funded or energetically administered—can escape the dominating influence of the labor market. Where unemployment is high or the local labor market is thin, job opportunities for displaced workers simply may not exist. Another finding was that most displaced workers, even with help, lost ground. The Automation Fund Committee's performance must be judged in this context; its successes were only relative. It did help hundreds of ex-meatpackers to find new jobs, or get retraining, or transfer to other Armour plants. Although the record is incomplete, it clearly indicates that workers assisted by the committee fared better in finding new jobs than those who had no such help. Even so, most of the displaced workers suffered losses. For example, workers who chose retraining made slightly better wages on new jobs than those who did not; yet their hourly earnings declined drastically from the level at Armour—25 to 35 percent for men and 50 to 60 percent for women.

Displaced worker programs, Shultz and Weber concluded, must cultivate a "sense of mobility"—an awareness on the part of the worker of opportunities and how to capitalize on them. This calls for a variety of services: counseling, instruction in job-seeking techniques, information about possible jobs in a wide market, and information about prevailing wage levels and occupational training. Government and private programs can help the jobless help themselves, but self-help starts with the knowledge the programs can impart.

MEASURING SUCCESS

Before discussing lessons from the successes or failures of more recent displaced worker programs, it is well to consider first what constitutes success. The most obvious answer is, simply, finding a new job. The Job Training Partnership Act adopts "placement and retention in unsubsidized employment" as the only measures of performance under Title III, which created the displaced worker program.

The purpose of writing this measure of performance into the law was to make operators of jobs projects accountable for their successes or failures. Projects that meet specific performance standards set by the States (based on the criteria in the law) are rewarded with continued funding. Those that fail must account for their failures, and bring their performance up to standard within 2 years or face loss of funding.

While job placements have the virtue of simplicity and ease of measurement as indicators of success, they are not without complications. First, there is the fact that the economic climate is a predominating influence on the ability of any project to place workers in jobs. Also, the backgrounds and abilities of the workers served and the range of services provided may be important factors. These complexities are recognized in JTPA. The law allows States to vary their performance standards to take account of economic, geographic, and demographic factors, the characteristics of the populations served, and the types of services offered.

A few examples drawn from six displaced worker demonstration projects of 1982 and 1983, sponsored by the U.S. Department of Labor, illustrate the point. The projects, located in different regions and experiencing different economic conditions were in Alameda County, California; Buffalo, New York; Lehigh Valley, Pennsylvania; Mid-Willamette Valley, Oregon; Milwaukee, Wisconsin; and Yakima, Washington.[2] Table 6-1 summarizes some characteris-

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[2] Material in this section on the six demonstration projects is drawn from evaluation reports conducted by Mathematica Policy Research, Inc., for the Employment and Training Administra-

Table 6-1.—Program Outcomes, Displaced Worker Demonstration Projects, 1982-83

	Project site					
Outcomes	Alameda	Buffalo	Lehigh Valley	Mid-Willamette Valley	Milwaukee	Yakima
1. Participants[a]	3,134	798	1,285	305	2,713	243
2. Placements	549	523	411	185	231	196
3. Recalls	610	27	26	0	0	0
4. Transfers to other programs	1,641	0	200	3	0	8
5. Placement rate[a] (2 ÷ 1)	18%	66%	32%	61%	8.5%	81%
6. Entered employment rate [(2+3) ÷ 1]	37%	69%	34%	61%	8.5%	81%
7. Adjusted entered employment rate [2+3) ÷ (1 − 4)]	78%	69%	40%	61%	8.5%	83%
8. Average placement wage	$7.40	$6.62	$6.70	$7.37	$6.60	$8.11
9. Percent decline	36%	34%	24%	30%	25%	19%

[a] See text for a discussion of the factors, such as screening of applicants, which affected the number of participants, and thus placement rates.

SOURCES: Mathematica Policy Research, *Case Study of the Alameda County and Southgate Dislocated Worker Demonstration Projects*, Jack Wichita, *Case Study of the Milwaukee Dislocated Worker Program*, *Case Study of Operation Jobsearch: The Lehigh Valley Dislocated Worker Demonstration Project*, and *Case Study of Project S.A.V.E.: The Yakima, Washington Dislocated Worker Demonstration Program*, L.M. Wright, Jr., *Case Study: Buffalo Worker Reemployment Center, Buffalo, New York* and *Case Study: Mid-Willamette Valley Job Assistance Network, Salem, Oregon* (Princeton, NJ: Mathematica Policy Research, 1984); Marcia Jerrett, et al., *Serving the Dislocated Worker: A Report on the Dislocated Worker Demonstration Program* (Cambridge, MA: Abt Associates, 1983); and Walter Corson, et al., *Process and Implementation Issues in the Design and Conduct of Programs to Aid the Reemployment of Dislocated Workers: Findings Based on the Dislocated Worker Demonstration Project* (Princeton, NJ: Mathematica Policy Research, 1984).

tics and results of these six projects, including placement rates and earnings on the new jobs compared with the old jobs.

Among the six projects, the one in Yakima attained the highest placement rate, 81 percent—a remarkable achievement during an economic recession and a credit to the project operator. But the high rate of placements also reflected Yakima's fast recovery from severe economic stress (at one time the local unemployment rate reached 16 percent, with the shutdown of construction of a nuclear power plant). It also reflected the character of the participants, who had been rigorously screened for motivation and "serviceability." Those considered hardest to place were weeded out in a series of interviews; of 1,350 applicants, only 243 actually enrolled. Many of the participants were skilled construction workers, accustomed to job changes and willing to relocate.

At the other extreme was the project in Milwaukee, which placed only 8.5 percent of participants (231 out of 2,713 enrolled). At the trough of the recession, Milwaukee's unemployment rate was 11.9 percent, well above the national average; but the area quickly rebounded in the recovery. Probably the local unemployment rate was not a major factor in Milwaukee's placement record. More significant was the fact that this project did no screening whatsoever; anyone who registered was enrolled. (About 1,200 workers completed job applications; if only these are considered participants, the placement rate rises to 20 percent.)

As discussed in chapter 5, the concept of "entered employment," which States use in reporting outcomes of JTPA projects, calls for even more cautious interpretation. Whereas "placement" counts only the new jobs found by participants, "entered employment" counts recalls as well. This sometimes produces puzzling results. For instance, the JTPA Title III program in Pontiac, Michigan, reported an astonishing entered employment rate of 93 percent in 1984; however, practically all of the jobs this figure represented were recalls of Gen-

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tion, U.S. Department of Labor: Mathematica Policy Research, *Case Study of the Alameda County and Southgate Dislocated Worker Demonstration Projects*; Jack Wichita, *Case Study of the Milwaukee Dislocated Worker Program*, *Case Study of Operation Jobsearch: The Lehigh Valley Dislocated Worker Demonstration Project*, and *Case Study of Project S.A.V.E.: The Yakima, Washington Dislocated Worker Demonstration Program*; L. M. Wright, Jr., *Case Study: Buffalo Worker Reemployment Center, Buffalo, New York* and *Case Study: Mid-Willamette Valley Job Assistance Network, Salem, Oregon* (Princeton, NJ: Mathematica Policy Research, Inc., 1984). See also Marcia Jerrett, et al., *Serving the Dislocated Worker: A Report on the Dislocated Worker Demonstration Program* (Cambridge, MA: Abt Associates, 1983); Walter Corson, Rebecca Maynard, and Jack Wichita, *Process and Implementation Issues in the Design and Conduct of Programs to Aid the Reemployment of Dislocated Workers: Findings Based on the Dislocated Worker Demonstration Project* (Princeton, NJ: Mathematica Policy Research, 1984).

eral Motors employees.[3] Many of the workers enrolled in the project had been on layoff for 3 or 4 years, and were rightly regarded as displaced workers; the extent and rate of reemployment at General Motors took everyone by surprise.

Another aspect of the entered employment rate that could easily be misunderstood is that it is based on "terminations," people who have officially ended their participation in the projects. Placement rates that are based on total participants—everyone who enrolled in the project—are not comparable; they are almost always lower. More detailed discussion of the reported outcomes under JTPA appears in chapter 5.

Job retention, the other statutory measure of performance under JTPA Title III, can only be evaluated after the passage of time. Few displaced worker projects have followed participants systematically enough or long enough to find out whether clients keep their new jobs. "Entered employment" in JTPA reports refers to 1-day retention on the job. In an OTA telephone survey of State managers of Title III programs, conducted in 1984-85, only two (in Washington and Wisconsin) said they considered retention on the job as part of the standard of performance.[4] Some projects do follow participants after placement, but usually for no more than 90 days. In the absence of a long-term followup, a possible indicator of whether jobs the displaced workers enter will be lasting is the quality of the job, including livable wages, chances for advancement, and reasonable job security.

The period of unemployment is another useful measure of success, but again caution is in order. Some displaced workers, especially if they are covered by extended supplementary unemployment benefits (SUBs), may not look for work seriously for a long time. Even the average worker, with only 6 months of UI to fall back on, may not begin the search for work immediately. An initial period of unemployment may simply be a period of adjustment. Prolonged unemployment or repeated bouts of unemployment are signs of more serious trouble.

A significant measure of success is earnings, in particular earnings on the new job compared with the old. Most displaced workers do not immediately find jobs that pay as much as their old ones; their skills and experience may not be very attractive to new employers. But programs that help workers find better jobs than they can find on their own, and help to keep earnings losses to a minimum, have achieved substantial success.

JTPA does not mention earnings as a measure of performance for Title III programs, although it does for Title IIA, for disadvantaged workers.[5] California's Employment Training Panel, which provides reemployment and retraining services for displaced workers, emphasizes the importance of the earnings measure. It requires that trainers, unless they place their graduates in jobs paying at least $5 an hour, do not get paid. A number of projects funded by JTPA Title III are making similar stipulations in their contracts with trainers. The average reemployment wage for participants in Title III programs in 1984 was reported to be $6.15, and in most States was moderately lower than the wage on the old job.[6]

Measures of success, while taking benefits into account, cannot ignore costs.[7] The simplest way to include costs is to calculate them per placement. The drawback to this simple calculation, however, is that the only value, or benefit, weighed against the cost is that of getting a job, without regard for the quality of the new job, earnings both immediate and future, the breadth of choice offered to participants, the character of workers enrolled in the program, and local economic conditions.

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[3] Robert Cook (ed.), "Dislocated Worker Projects Under Title III of the Job Training Partnership Act," report to the U.S. Department of Labor Employment and Training Administration (Rockville, MD: Westat, Inc., 1985).

[4] JTPA directs the Secretary of Labor to establish performance standards for both Title IIA programs (for disadvantaged workers) and Title III programs (for dislocated workers). At the time of the OTA telephone survey, the department had not yet set numerical standards for Title III programs, but governors had been required to establish a standard for the entered employment rate for terminees for the 1984 program year (beginning July 1, 1984). The Labor Department is developing performance standards for Title III, in consultation with representatives of business, labor, and States.

[5] JTPA states that "the basic measure of performance for adult training programs under Title II is the increase in employment earnings and the reductions in welfare dependency resulting from participation" (JTPA Sec. 106 (b)). In 1984, a wage of $4.91 per hour was part of the national performance standard for Title II programs.

[6] See ch. 5 for details.

[7] JTPA mentions costs in connection with Title II: "The Secretary (of Labor) shall prescribe performance standards relating gross program expenditures to various performance measures" (JTPA Sec. 106 (b)(4)).

The demonstration displaced worker programs of 1982-83 are again illustrative. The lowest costs per placement among the six projects were Milwaukee's ($1,503); the next to highest were Buffalo's ($3,014, or about twice as high).[8] Milwaukee offered only two services, job development and placement—no testing and assessment, no job search skills training, no classroom training. Only 231 jobs were turned up for the 1,200 or so who completed applications and expected to get service from the project. Reemployment wages in Milwaukee were among the lowest of the six projects ($6.60 per hour), but since pre-layoff wages were also comparatively low (about $8.80 per hour), the decline in wages was 25 percent, not the largest among the projects. Although Milwaukee's unemployment rate was temporarily higher than the national average, the area recovered faster than the Nation as a whole.

Buffalo, by contrast, has been a distressed labor market for years, with unemployment persistently above the national average. Mainly serving displaced steel, auto, and rubber workers, the Buffalo project offered a full range of services, from outreach through assessment, training, and placement. Nearly half the participants took classroom or on-the-job training. Buffalo's placement rate was a creditable 66 percent (523 for 798 participants). Ultimately, the placement rate may have been still better; the project and recordkeeping ended when more than half the workers taking classroom training had only recently (within 90 days or less) completed their courses. Reemployment wage rates in Buffalo were low, $6.62 per hour on average, 34 percent below the pre-layoff wage of approximately $10.00 per hour.

These vignettes make the point that no simple, single measure such as cost per placement fully captures the performance of a displaced worker program. Such measures are useful. They highlight achievements or disappointments that might not otherwise be apparent. But they are aids to understanding, not substitutes for it.

Long-term impact evaluations offer a more complex and sophisticated way to measure the success of displaced worker programs, by tracking results over several years, comparing earnings of workers who participated with those of similar workers who did not, and analyzing costs and benefits, to the individuals involved and to society.[9] Judging by these measures, the training programs of the 1960s funded under the Manpower Development Training Act (MDTA) were by and large successful. Long-term followup studies showed that participants' earnings were substantially higher than those of comparison groups, and the return on public investment was large and rapid (see ch. 5). For modern displaced worker projects, the oldest of which date back to 1980, the results are not yet in. The U.S. Department of Labor intends to evaluate the impact of JTPA training programs, but first results are not expected until 1988.

Meanwhile, two large modern displaced worker projects have been studied for their overall effects: the Downriver Community Conference employment and training program and the Buffalo dislocated worker demonstration program. Downriver, the first to be studied, showed favorable results in 1980-81, but no positive impacts in 1981-83. Buffalo, operating for one year in 1982-83, showed large, favorable effects on both employment and earnings.[10]

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[8] Of the six programs, the most expensive by far, in terms of placing workers, was that in Alameda County, California, serving mainly workers laid off from a General Motors assembly plant. Further discussion of the results in Alameda Country appears at a later point in this chapter.

[9] For a helpful discussion of the evaluation of employment and training programs, see Michael E. Borus, *Measuring the Impact of Employment-Related Social Programs* (Kalamazoo, MI: The W.E. Upjohn Institute for Employment Research, 1979).

[10] Jane Kulik, D. Alton Smith, and Ernst W. Stromsdorfer, *The Downriver Community Conference Economic Readjustment: Fi-*

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Photo credit: Downriver Community Conference

Drafting is one of the training courses offered to displaced workers by The Downriver Community Conference.

The Downriver Community Conference, a public agency serving 16 communities southwest of Detroit, began its displaced worker project in 1980, offering reemployment and retraining services to approximately 1,500 workers who lost their jobs in the shutdown of BASF and Dana, two auto supply plants. Results of this Phase One Downriver project, lasting from July 1980 to September 1981, were favorable. Compared with similar workers involved in two similar plant closings in the Detroit area, Downriver participants were reemployed at rates 13 to 20 percentage points higher, and with earnings $77 a week more, than would be expected. In Downriver's Phase Two, lasting from November 1981 to September 1983 and serving about 600 workers laid off from the Ford Motor Co.'s Michigan Casting Center, no positive results were evident. The workers served by Downriver did no better, and in fact by one measure (reemployment rate) did worse, than would be expected if they had received no services.[11]

Several explanations have been put forward for these divergent results. One factor may have been that most of Phase Two took place in the depths of the 1981-83 recession, and that no displaced worker project, however well designed and well run, could make a difference at that time. Also, the Ford workers had more sources of financial support (supplementary unemployment benefits and Trade Adjustment Assistance, as well as UI) while they were unemployed than the Phase One workers did; they may have been less eager to accept the jobs available through the project. The most compelling explanation, the Downriver study concluded, was "unmeasured differences" between the workers in the first and second phases—factors such as "motivation, attitude, and maturity" that affect the morale of a plant's entire work force and shape their reemployment experience.[12] In any case, it is risky to draw general conclusions from the experience of one group of workers, from one plant, at a time when the local unemployment rate was 16 to 18 percent.

The Downriver study concluded, overall, that "it is indeed possible to design and operate effective programs for dislocated workers," that the programs "can produce positive impacts on participants' employment and earnings," and that "these benefits can exceed the costs of operating such programs."[13]

The results of the Buffalo project, also operating in conditions of deep recession, were unequivocally favorable. The project served 798 workers, the majority (510 people) from nine target plants, mainly in the steel and auto industries, plus a smaller, varied group (288 people) from several hundred area employers. The study estimated that in the 6 months after the project ended, participants from the target plants were employed, on average, 60 percent of the time instead of the 30 percent that would

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nal Evaluation Report, report to the U.S. Department of Labor, Employment and Training Administration (Cambridge, MA: Abt Associates, Inc., 1984); Mathematica Policy Research, Inc., *An Impact Evaluation of the Buffalo Dislocated Worker Demonstration Program*, report to the U.S. Department of Labor, Employment and Training Administration (Princeton, NJ: Mathematica Policy Research, Inc., 1985).

[11] Kulik, et al., op. cit., and Jane Kulik, D. Alton Smith, Ernst W. Stromsdorfer, *The Downriver Community Conference Readjustment Activity Program: Impact Findings From the First Phase of Operations*, report to the U.S. Department of Labor, Employment and Training Administration (Cambridge, MA: Abt Associates, Inc., 1983). The authors of the impact study had no complete explanation of the negative impacts on the Ford workers' reemployment rates, but speculated that participants may have been more selective about job offers than the comparison group of workers.

[12] Kulik, et al., op. cit., 1984, pp. xv-xvi.

[13] Ibid.

be expected, based on the experiences of a comparison group. The participants worked an average of 24 hours per week, instead of the 10 hours a week expected, and had average earnings of $174 per week, versus the $59 expected ($290 versus $197, if only employed workers are included). In the nontarget plant group, the results were also uniformly positive, although the effects of participation were judged to be relatively smaller. In the 6-month period after the project ended, these participants worked, on average, 27 hours per week compared to an expected 19 hours, and were earning $194 dollars per week versus $96.

Summing up the overall net impacts of the project on employment and earnings, the Buffalo study concluded that "even in a poor economy, job-search assistance and retraining services can significantly facilitate the readjustment of dislocated workers."[14] A caveat was then added about the uncertainties of generalizing results from one area and one project. The authors pointed out that the Buffalo project not only offered a comprehensive array of services, but also had a strong organizational structure and a highly experienced staff.

The discussion so far has mostly concerned measures of success that are based on benefits to displaced workers. Also important are benefits to employers and to society at large. Employers benefit when publicly financed retraining programs supply them with workers who have learned special skills required for jobs that have to be filled. Employers also benefit from the worker screening and job matching that displaced worker projects can provide. Some of these benefits are hard to quantify, and may not be explicitly counted in evaluating the performance of displaced worker programs. But they count for a good deal in public acceptance and political support for such programs, and are at least implicitly present in simpler measures of success.

The same is true of benefits to society. Successful performance of a displaced worker program implies a host of benefits, ranging from ones that can be quantified—e.g., reduced drains on unemployment insurance trust funds, lower payments for welfare or food stamps, and increased tax revenues from reemployed workers—to ones that cannot—e.g., fair treatment of workers who bear the heaviest burden of adjustment to technological change and world competition.

For the displaced worker projects of the 1980s, there has so far been very little investigation of the payback on the public investment in retraining and reemployment services. The Buffalo impact study looked at spending for four income support programs—unemployment compensation (UI), SUBs (which are provided by employers, not the public), food stamps, and public assistance—but pointed out that none of these programs were much used by the Buffalo workers. Many of the workers had been laid off for a year or more before the displaced worker project began, and had exhausted their UI and SUBs. The project tended to reduce the amounts that workers received from these two programs, but the impacts were not significant statistically, mainly because usage was low. Relatively few of the Buffalo workers received public assistance or food stamps either. However, for the participants from target plants, the study did find statistically significant reductions in food stamp and public assistance benefits as a result of taking part in the project.

COMMON INGREDIENTS OF SUCCESS

Several key ingredients of success seem to be common to many kinds of displaced worker projects, whatever the details of their individual designs. These common ingredients have to do with where and how soon services are available and with the commitment of management, in cooperation with labor, to provide effective services. Finally, the best projects are designed specifically to fit their own economic situations, regions, and people.

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[14] Mathematica Policy Research, Inc., op. cit. (1985), p. 18.

Plant-Centered Projects

Some of the best-run displaced worker projects are those centered in plants that are closing or undergoing large layoffs, and are operated by people who work at the plant on both the labor and management sides. Plant-centered projects have several advantages in their favor: the people who run them have a personal stake in the outcome, know many of the individual workers involved, and are acquainted with the local business community where the hidden job market (openings that are never publicly announced) is found. Also, such programs fill a special need, which is to serve large numbers of workers with similar skills and work histories who are all dumped on the labor market at once. Even in good times, it is difficult for local labor markets to absorb a great many similar workers at the same time.

Several examples illustrate the worth of the plant-centered approach; one is the Johnson and Johnson project in Chicago in 1983, described in box 6A. In most of the plant-centered projects that have worked well, the companies involved were large, the workers were represented by unions, labor-management relations were good to excellent, and labor-management teams were in charge. In almost every case, the team leaders were exceptionally resourceful and dedicated. Can plant-centered programs work without these special assets?

Two decades of experience in Canada suggest that they can. Since 1963, a small Federal agency, the Industrial Adjustment Service (IAS, formerly the Manpower Consultative Service) has set up thousands of labor-management reemployment committees in virtually every major plant closing or layoff in Canada. IAS moves in quickly, usually before any layoffs occur, to establish the committees and provide them with technical advice, modest financial help, and experienced, independent chairmen. The committees' job is to mobilize community resources for reemploying the displaced workers. They get in touch with area employers in similar lines of work, unions that may know of job openings, and more distant employers who may need the laid-off workers. Most committees finish their work by the end of year, and go out of business. Typically, they find jobs for two-thirds of all the workers displaced, and for most of the workers who sign up to participate in the program.[15]

There is no real analog of the Canadian IAS in this country. The closest are the rapid response teams some States have created in their JTPA Title III programs, which bring job search assistance services to plants where workers have been given notice of layoff. A few States, including Arizona and South Carolina, have put considerable effort into rapid response or pre-layoff assistance. They believe that by finding new jobs for many workers before they are laid off, and thus avoiding any interruption in employment and any payment of unemployment insurance, the effort more than pays for itself. (Ch. 5 discusses these efforts further.) However, some features of the Canadian IAS that contribute to its consistent success and low cost are not usually found in JTPA rapid response programs; that is, the establishment of labor-management committees within the plant, with the plant's workers and managers directing it, under the leadership of an independent chairman. The IAS-assisted committees usually stay in existence for at least a year, rather than disappearing or changing their locus and sponsorship when the plant closes, as is true of some of the rapid response efforts mounted by States.

Wherever they exist, plant-based labor-management committees can take advantage of JTPA Title III funds and, in some cases, can get additional support from State programs or the private sector. Sometimes employers laying off workers bring in consultants to advise them how to set up adjustment committees, often with union participation. These committees, once established, can apply for JTPA funds. However, as of 1985, none of the States had created an institutional mechanism under JTPA to help create labor-management adjustment committees in plants undergoing closure or layoffs.[16] Part of the problem may be that

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[15] A more detailed description of the Canadian Industrial Adjustment Service appears in ch. 5.

[16] In late 1985, the Department of Labor was considering a pilot project, in cooperation with selected States, to provide technical assistance to plant-based projects, possibly on the model of the Canadian IAS.

Box 6A.—Labor-Management Committee at Johnson & Johnson Plant Finds Jobs for Displaced Workers

When Johnson & Johnson decided in 1982 to close an antiquated Band-Aid plant in Chicago, it was faced with laying off half the plant's 700 employees in a deeply depressed labor market. (The rest of the workers were moved to a modern Johnson & Johnson plant nearby.) Under its contract with Amalgamated Clothing and Textile Workers Union, the company provided generous severance pay, extended health benefits, early retirement for those who wanted it, preferential hiring in other company plants, and at least 3 months' notice to any employee slated for layoff.

The company and union together also undertook to help the laid-off workers find jobs. At an earlier Johnson & Johnson plant closing in downstate Illinois, a consulting firm teaching job search methods had failed to help the hourly workers. This time, the plant's personnel manager and the president of the union local formed a committee to do the job themselves. "We decided not to pay a lot of money for people who didn't understand our employees as well as we did," said one of the committee co-chairmen.

The committee's job development efforts began with a lunch invitation to representatives of 200 companies and employment agencies, allowing them to get acquainted with the Johnson & Johnson employees. The response was uniformly positive; companies that were not hiring offered names of others that might be, and so the network grew. Another committee effort was a direct mailing to 500 companies, selected from business directories by location and type of business, which included brief sketches of categories of workers available from Johnson & Johnson. The recipients had only to check the category of workers they were interested in. This brought 200 replies within 4 weeks. In addition, Johnson & Johnson offered to train some of their workers to fit new employers' needs. In addition to job development, the committee also offered counseling and job search skills workshops.

A year later, 70 percent of the hourly workers seeking new jobs had them—and this included workers who had been laid off at least a year earlier and came back to take advantage of the program. Skilled workers were usually snapped up quickly with no loss in pay, but the semiskilled, on average, took pay cuts from about $8 to $6 per hour. Chicago's unemployment rate was over 12 percent at the beginning of 1983, when the reemployment efforts for Johnson & Johnson workers began, and was still 8.5 percent at the end of the year. In light of all the evidence (see ch. 3) that displaced workers experience unusual and prolonged unemployment—even in communities with low unemployment rates—this project achieved a good measure of success.

State administrative costs under JTPA are limited to 5 percent of Federal grants. Many States have no more than two or three officials working full time on the JTPA Title III program; often they are ill-equipped to give technical assistance to companies or unions that want to set up plant-based services for displaced workers.

The great majority of displaced worker projects in the United States are operated by continuing outside organizations, not by plant-based committees. In fact, JTPA's provision of rewards and sanctions for performance assumes that whoever is running the projects will be back the next year. There is one important advantage to this approach, which is that a continuing project can serve a broad population. In most communities suffering mass layoffs or plant closings, other businesses feel ripple effects. For example, in Buffalo in 1981-82, more than half the worker displacement, following large layoffs and closings of steel and auto plants, occurred in numerous small establishments, especially retail stores. Workers who lose their jobs in twos and threes, or even tens, usually cannot be served effectively by a plant-based committee. Moreover, even when an effective plant-based effort has served workers in a plant closing or large layoff, a continuing project can serve workers who have not yet been satisfactorily placed when the committee goes out of business.

Another advantage of a continuing organization is that, if it is effective in finding jobs and matching workers to them, it can build a reputation, both with area employers and with the workers it serves. This kind of reputation is self-reinforcing; employers list good jobs with projects that send them well-qualified workers, and workers sign up with projects that offer good training and list good jobs.

To sum up, plant-based labor-management committees have unique advantages in serving workers from their own plants; that is, personal acquaintance with the workers and their abilities, and personal networks for turning up job opportunities in the community. No Federal or State program is designed specifically to encourage the formation of such committees, although they can be supported under JTPA. Permanent displaced worker projects have a different major advantage, in that they can serve displaced workers both from target plants and from the wider community. Both kinds of projects are needed. There is no reason why they cannot coexist.

Timing

The best time to start a displaced worker program is before the layoffs begin. Although not every worker will take advantage of the program early, having it available is important to boosting morale, avoiding bitterness and apathy, enabling people to plan their future, and offering training to those who need it while they still have before them the basic 26 weeks of unemployment insurance plus any available supplemental programs.

An outstanding example of the value of early action was the displaced worker program at the Ford Milpitas plant near San Jose, California, described in box 6B. Other displaced worker programs also got off to an early start with good results. For example, in phasing down its Chicago Band-Aid plant, Johnson & Johnson gave every displaced worker at least 3 months' notice, and some as much as 2 years' notice. The Brown & Williamson Tobacco Co. announced the coming closure of its Louisville plant, with the loss of 3,000 jobs, in 1979. As required by its union contract, the company gave 18 months' notice before the first layoff, but it was 3 years before the plant shut down. The idea of the 3-year lead time was to reduce the work force gradually, allowing a staggered influx of workers into the local labor market.[17] It should be noted that in all these cases, early notice of a closing or layoff was accompanied by a program of high-quality adjustment services to the workers being laid off. Advance notice of layoff without the provision of such services is much less useful.

Most directors of displaced worker projects are convinced of the value of early intervention, not only in fairness to the affected workers, but also as a way to keep constructive action going. "People need structure," said one director. Without a program of services in place at the time of layoff, the usual sequence is "the first month, they complain. The second month, they take a trip with the family. The third month they fix up the house. The fourth month, depression sets in."

The employment and training project of the Downriver Community Conference found that if services are available before the plant closes, half the workers take advantage of them. Up to a year after closing, 35 percent sign up. After 2 years, 17 percent participate.[18] Does this mean that workers simply find jobs on their own, without help, as time passes? Yes, of course, many do. The Buffalo impact study concluded that the majority of displaced workers interviewed (of whom 35 percent partici-

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[17] Other projects that gave advance notice of layoffs and began services to displaced workers early include those of the Dana Corp. (Edgerton, WI, four-wheel drive axle plant); Empire-Detroit Steel (Portsmouth, OH, plant); and Goodyear Tire & Rubber (Lee Tire of Conshohocken, PA). All were plant-based projects operated by labor-management committees. For details of several of these projects see U.S. Department of Labor, Labor Management Services Administration, *Plant Closings: What Can Be Learned From Best Practice* (Washington, DC: U.S. Government Printing Office, 1982).

[18] Kathleen Alessandro and W. Robert Schnieders, "Case Study—Retraining Workers Displaced From the Automotive Industry Into Robotic Technicians," paper presented to the Society of Manufacturing Engineers (Dearborn, MI: Society of Manufacturing Engineers, 1984).

Box 6B.—Early Action at an Auto Assembly Plant Closing

At the Ford Motor Co.'s auto assembly plant at Milpitas, California, near San Jose, a labor-management team mounted an outstanding worker adjustment program within days of an advance notice plant-closing announcement. Months before the closing, an array of services, from in-plant training courses to personal counseling, was made available to the plant's workers. The quick response and wide range of services helped to maintain high worker morale until the day the plant closed.

The prompt action getting services to displaced workers underway was based on labor-management cooperation that already existed in the Ford Milpitas plant. Cooperation did not always exist. The 1970s were years of rocky labor relations for the Milpitas plant. In 1979, a new manager took over, committed to the idea of employee involvement which Ford and the United Auto Workers had just written into their national contract. Employees were encouraged to solve problems cooperatively with management, and supervisors began to listen to shop floor workers' ideas on improving quality and productivity. By 1981, when the plant was retooled to make Escorts, attitudes of both labor and management had changed. By 1982, the Milpitas plant was at the top of the Ford assembly division for productivity and quality.

But world competition was forcing Ford to retrench. Japanese success in capturing the small car market was greatest on the west coast, and headquarters decided the Milpitas plant could not survive. In accordance with the national union contract, Ford announced on November 18, 1982, that the plant would shut down the next May, with the loss of 2,386 jobs.

Within hours, a representative of the California Economic Adjustment Team was at the plant, laying out the State and community resources available to the workers. Within 4 days, a joint labor-management committee chaired by the plant's industrial relations manager and the UAW local bargaining chairman had set up an employee reemployment and retraining center in the plant. The same two men had co-chaired the plantwide employee involvement teams.

Before the plant closed in May 1983, these events had taken place:

- All workers in the plant received a detailed explanation of why it had to close and why there was no chance it would reopen.
- Every worker was given personalized information on his or her benefits and retirement situation.
- Testing began for every worker who wanted adult education or skills training courses.
- Starting in January 1983, adult reading and mathematics classes were held in the plant 4 days a week full time, while the assembly line was down; later, classes were scheduled at 3 p.m., just after the daytime shift.
- Job developers (who were all plant employees) began a sweep of the area for job openings. Anyone who wanted to take a job before the plant closed could do so without loss of severance pay.
- Skills training classes and on-the-job training were scheduled to start up the Monday after the plant closed on Friday.

Until the day the plant closed, quality and productivity continued to rise. On the official closeout date, September 1, 1984, 83 percent of those looking for work had found jobs; 1,460 were employed, 500 were retired or within a few months of retirement, 118 were still in training, and 308 were unemployed. The average wage on the new job was about $8 per hour, compared to $12 at Ford, but for many that was a starting wage with good prospects for advancement. The response of the Ford workers to training opportunities was exceptional; 748 of the workers took skills training courses (and most completed the training), 770 took adult education classes, and 175 took and passed the GED high school equivalency exam.

The Ford/UAW project at Milpitas cost between $5.6 million and $7.2 million, depending on how the resources provided by the Ford Motor Co. are valued. (These included staff time, office space, and other overhead, in addition to supplementary unemployment benefits for eligible workers who were in training.) Besides Ford money, other major sources of funds were training, education, and employment agencies of the State of California, JTPA Title III, the Ford/UAW nickel-an-hour fund, and Trade Adjustment Assistance. For the 1,997 workers who signed up for services, the average expenditure was roughly $2,800 to $3,600 per worker. No one has tried to account for the total benefits, to the workers and to society, of this particular project, but in the opinion of its co-directors, the services they offered were "cheap at the price."

pated in the reemployment/retraining project) found jobs on their own, but only after an average duration of unemployment after layoff of 14 to 15 months, and at substantially lower pay than on the old job. The point of providing adjustment services, and providing them early to a larger number of workers rather than later to a smaller number, is to help the workers get jobs sooner, stay employed more steadily, and earn more than they would without such help. The Buffalo study, the Downriver study to some degree, and the earlier long-term impact studies of MDTA all concluded that readjustment assistance can indeed help displaced workers accomplish these things. Another argument for early intervention is based on anecdotal evidence, which suggests that many displaced workers who are long unemployed lose the habit of, and confidence for, work. Some get by on repeated cycles of working just long enough to be eligible for UI, then collect UI while working at odd jobs for cash or barter in the underground economy.

Employers, as well as displaced workers, can benefit from early intervention. A prompt start on reemployment can save outlays from the State's unemployment trust fund, which employers pay for through an earmarked tax. Also, it enhances a company's reputation both with the public and with their remaining workers (in cases where the plant does not shut down completely) if those who are laid off are seen to get effective help.

Having services available early for displaced workers does not imply that every participant must begin early. Workers themselves, one researcher observed, do a pretty good job of determining at what point after their layoff they are likely to gain from the program.[19] The Canadian IAS has found that a program length of 1 year or a bit more is about right to serve most workers.

So far, research studies on the relation between advance notice and subsequent employment and earnings of displaced workers are limited and inconclusive. A study of Maine plant closings found that unemployment in localities affected by the closings was significantly lower when advance notice was given. This included indirect or ripple effects on employment in the community, as well as direct effects on workers laid off in the plant closure.[20] Another study, looking at 30 plant closings from 1969 to 1972, found that advance notice did not seem to reduce earnings losses significantly, but a number of shortcomings in the data were noted.[21] Neither study took into account what services, if any, were offered to workers expecting to lose their jobs in the plant closings.

This point is critical. Advance notice of layoff will be of less value if no services are offered to the workers during the lead time the notice provides. Without constructive action, morale can deteriorate during the notice period (although it can be argued that uncertainty, compounded by rumors, can be even more damaging to morale). Action either by a crisis intervention entity like Canada's IAS, or by existing labor-management committees, or by a project operating under JTPA auspices, can make positive use of early notice.

Another key point is that notice of a plant closing must be unequivocal if possible. Workers who have put in 15 or 20 years at a plant, and many times have gone through temporary layoffs, often find it incredible that the plant is really closing. The bad news is easier to believe when company managers disclose the reasons in detail, including information on the company's financial position. If a company announces, before layoff, that it will help provide services for displaced workers, that also helps to bring home the reality of the situation.

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[19] Rebecca Maynard, "Lessons From the DOL-Sponsored Workers Demonstration Program," paper presented at the National Alliance of Business Conference on Displaced Workers, Detroit, MI, June 1984.

[20] Nancy R. Folbre, Julia L. Leighton, and Melissa R. Roderick, "Plant Closings and Their Regulation in Maine, 1971-1982," *Industrial and Labor Relations Review*, January 1984.

[21] Arlene Holen, Christopher Jehn, and Robert P. Trost, *Earnings Losses of Workers Displaced by Plant Closings*, report to the U.S. Department of Labor, Bureau of International Labor Affairs (Alexandria, VA: The Public Research Institute, 1981).

JTPA provides that displaced worker services may begin before layoff, as soon as the workers are given pink slips. A number of State directors of JTPA Title III programs have expressed strong interest in an early warning system so they can offer pre-layoff assistance more readily.[22] Some employ ingenious methods to find out in advance about plant closings and mass layoffs. For example, Rhode Island collects information via its business-retention program, in which State staff visit each firm in the State every year. Several States, including Arizona, Colorado, South Carolina, and Texas, encourage companies to give voluntary advance notice of impending layoffs; they also rely on newspaper accounts and word of mouth. Arizona program leaders, particularly active in pre-layoff assistance, encourage companies that benefit from this service to displaced workers to make it known to other companies.

An issue that concerns many States with respect to early warning is how and whether they can use Title III funds to prevent plants from closing. Some State-funded programs offer retraining and other kinds of assistance to try to prevent closings and worker layoffs.[23] So does the Canadian Industrial Adjustment Service. JTPA, however, defines displaced workers who may be served under Title III as those who are already unemployed, or have received notice of termination. A brief discussion of policies to prevent worker displacement appears in chapter 5.

Considering the advantages of early action, is it reasonable to require advance notice of plant closings and large layoffs by law? This proposal is highly controversial. The two main arguments against it are, first, that such a requirement overburdens business, forcing companies to keep ailing plants open longer than they otherwise would, and longer than is economically efficient; and second, that the requirement can have a perverse effect, forcing the closure of some plants that might otherwise have remained open. It is argued that the announcement of a planned closing or mass layoff can seal the firm's fate, as workers take other jobs (or perhaps lose interest in their work), and creditors, suppliers, and customers change their terms of doing business. Opponents also say that government-imposed requirements for advance notice are quite different from such requirements in collective bargaining agreements, since in the bargaining the labor union presumably trades some other advantage for the advance notice.

Some European countries, most of Canada,[24] the State of Maine, and the city of Philadelphia require advance notice of plant closure or large-scale layoffs.[25] Proponents of plant closing legislation point to the compliance of business, including U.S.-based firms, with Canadian and European advance notice laws as evidence that the laws can work without being too burdensome. Mandatory advance notice laws usually include an escape hatch which allows firms not to give notice when business circumstances make it impossible.

Several States and some local governments are considering plant-closing legislation that requires advance notice. Some are deterred, however, by the argument that plant closing laws will drive business away to other States or localities. In addition, State and local plant closing laws might be challenged in court on grounds that Federal law preempts them, or the Constitution prohibits them.[26]

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[22] An OTA telephone survey of State directors of JTPA Title III programs, conducted from October 1984 to January 1985, found that pre-layoff assistance to displaced workers and early warning of plant closings were among the directors' top concerns. See ch. 5 for results of the survey and further discussion of the early warning issue as it affects JTPA programs.

[23] Two examples are the California Employment Training Panel and South Carolina's Rapid Response Team, both discussed in ch. 5.

[24] Six of ten Canadian provinces, including the most populous, require advance notice of plant closings or layoffs affecting 50 or more workers; the notice required varies from 8 to 16 weeks, depending on the number of workers affected. The Canadian national government has a similar plant closing law covering certain classes of workers.

[25] South Carolina requires advance notice of layoffs only from employers who require their employees to give notice of their intention to quit work.

[26] A Pennsylvania State court invalidated a Pittsburgh plant closing ordinance in 1983, mainly on the grounds that a State law prohibits municipalities from imposing duties and requirements on businesses. The court also relied in part on the argument that the ordinance was preempted by a Federal law, the National Labor Relations Act, though the court did not thorough-

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Michigan, Massachusetts, and Wisconsin have laws encouraging employers to give advance notice of layoffs and plant closings voluntarily. An earlier Wisconsin law, repealed in 1983, made advance notice mandatory; the new law establishes voluntary guidelines and incentives. The Massachusetts law, adopted in 1984, established a "social compact" that encourages companies to give 90 days' notice of a plant closing; firms that are financed, insured, or subsidized by quasi-public State agencies must agree to accept the "voluntary standards of corporate behavior" stated in the law, which include advance notice.

Relatively few American workers are covered by collective bargaining agreements that require employers to give advance notice of plant closings or major layoffs. Only about 18 percent belong to unions, and the percentage is declining. Moreover, in 1980, only 15 percent of major collective bargaining agreements (those covering more than 1,000 workers) contained language either requiring advance notice or authorizing union participation in the procedure of plant closing.[27] Some companies voluntarily provide advance notice of layoffs, but many do not. An example of the latter was a Silicon Valley firm which reportedly called employees off the afternoon shift, told them they were fired, escorted some off the property through back doors, and locked and chained the premises.[28] Of 5.1 million adult workers who were displaced from their jobs between 1979 and 1984,[29] 2.2 million reported that they did not receive advance notice or expect the layoff. The rest (2.9 million), who said they got advance notice or expected the layoff, did not specify what "advance notice" amounted to.[30]

Plant closing legislation has been introduced into Congress from time to time over the past 10 years, including, in addition to advance notice of layoffs, such features as mandatory severance pay, continued health insurance coverage,[31] and transfer rights for workers. Other features sometimes included are Federal loans and technical assistance to communities, businesses, or groups of workers who may want to buy out a plant and keep it open. No bill with these other features has ever been reported out of a full congressional committee, although some have been the subject of hearings.

In March 1985, Rep. William Ford (D-MI) joined with Representatives William Clay (D-MO) and Silvio Conte (R-MA) to introduce a simplified, bipartisan plant-closing bill (H.R. 1616). It would require all employers to give 90 days' notice before laying off 50 or more employees, unless business circumstances make this impossible. The bill would also require employers to discuss alternatives to closure with unions (where they exist) during the notice period, and would encourage such consultation with employees in non-union shops. Plant closing notices would go to the Federal Mediation and Conciliation Service, which would be authorized to provide assistance in plant closing disputes. This bill was reported out of the full House Committee on Education and Labor in July 1985, and defeated by a narrow margin by the full House late in the year.

Employer Responsibility and Labor-Management Cooperation

A number of companies, faced with the necessity of closing a plant or permanently laying off large numbers of workers, have taken

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ly explain its reasoning. No other court has yet ruled on the preemption claim, or claims that State and local plant closing legislation may be unconstitutional. For details of the arguments, see Richard P. Swigart (ed.), *Managing Plant Closings and Occupational Readjustment: An Employer's Guidebook* (Washington, DC: National Center on Occupational Readjustment, 1984), pp. 123-129.

[27] U.S. Department of Labor, Bureau of Labor Statistics, "Major Collective Bargaining Agreements: Plant Movement, Interplant Transfer, and Relocation Allowances," bulletin 1425-20 (Washington, DC: U.S. Department of Labor, July 1981).

[28] Tamar Lewin, "Workers' Rights in a Closing Tested," *The New York Times*, July 19, 1984.

[29] These are people who lost jobs they had held for at least 3 years because of a plant or business closing, abolition of a position or shift, or slack work; the job losses occurred between January 1979 and January 1984. The data were collected in a special survey of the U.S. Census Bureau in January 1984 for the Bureau of Labor Statistics, U.S. Department of Labor. For details of the survey results, see ch. 3.

[30] Information provided by the Bureau of Labor Statistics.

[31] The worry uppermost in the minds of many workers faced with layoff is the loss of company-provided health insurance. A number of major union contracts call for 3-month to 2-year extensions of health insurance benefits for displaced workers, as well as severance pay, an early retirement option, and priority consideration for jobs in other plants owned by the company.

responsibility for tempering the impacts. Usually, in these cases, union contracts call for advance notice of a plant closing and provision of some kind of assistance for the displaced workers, with union participation if appropriate. Some companies fulfill these obligations rather perfunctorily, for example by hiring contractors to offer the workers a few days of counseling. Others have gone far beyond what the union contract called for.

At the Ford assembly plant in Milpitas, for example, the contract called only for advance notice, for a meeting between company and union to discuss the matter, for provision by the company of counseling and placement assistance, and for preferential hiring in other Ford plants. What the Ford Motor Co. did, however, was to give the plant's industrial relations manager a free hand to "do what was right." The plant was kept open for 16 months after production ended, housing all program services except for vocational skills training and thus giving the displaced workers a one-stop shopping center in familiar surroundings. A company-paid skeleton staff stayed on to run the services.

The experience at Milpitas and other outstanding projects in which the companies took leading parts highlights several unique contributions that private employers can make. They can make space in plants for employment and training centers and for suitable training courses (e.g., remedial education); provide staff to run the employment and training centers; allow employees time off from work to attend counseling and job search workshops; and possibly keep the employment centers open after the plant is closed. Of course, not all employers can provide such a full range of services. Independently owned companies that are forced to close probably cannot afford most of them; but many large companies that are closing branches in the course of restructuring their businesses can help to provide top quality services for their ex-employees.

In several cases of best practice in closing a plant, the union was involved as actively as the company in planning and running the services for displaced workers. In most instances, these joint efforts were built on preexisting labor-management cooperation. For example, the Dana Corp.'s four-wheel drive axle plant in Edgerton, Wisconsin, closed in 1980, had never had a strike in 8 years, and had an employee turnover rate of 1 percent. Both the Dana Corp. and Johnson & Johnson, as well as the Ford plant, had employee involvement teams actively cooperating in improving the plants' productivity and product quality. The Brown & Williamson Tobacco Co. was a pioneer in establishing, together with its two unions (the Bakery, Confectionary and Tobacco Workers Union and the International Association of Machinists and Aerospace Workers), joint labor-management committees to handle the phase-out of 3,000 jobs and the creation of employment and training services.

Labor-management cooperation is a strong plus. Workers are likely to trust and use services that are planned, directed, or endorsed by their unions or representatives. Where labor-management teams do not already exist at the time a plant is closed, cooperative direction of the services can still be developed, as the Canadian IAS experience shows. This was the case at the Ford Motor Co.'s Oakdale, Ontario assembly plant, where more than 2,000 workers were laid off in two stages, in November 1979 and May 1980. A task force appointed by the president of Ford of Canada called in IAS (then called the Manpower Consultative Service, or MCS). The labor-management committees formed at Oakdale under MCS turned up jobs so effectively that within 8 months 94 percent of participants were placed. Of all the laid-off workers, (participants and nonparticipants) 80 to 85 percent had found jobs.

In the United States, government support for labor and management efforts to create effective displaced worker programs is mostly in the form of information sharing. A small office in the Department of Labor, the Bureau of Labor-Management Relations and Cooperative Programs, publishes material on best practice in plant closings, holds workshops, and responds to calls for help from States, companies, and unions.[32]

On the private side, both business groups (e.g., the National Alliance of Business and the National Center on Occupational Readjustment, Inc.) and labor (e.g., the Human Resources Development Institute of the AFL-CIO) are active in collecting and imparting information on practical ways of helping workers and communities hurt by plant closings.

Differences in Situation

The nature and condition of the local economy are dominating influences on the success of displaced worker projects, and also on their design. Projects that offer a full range of services are generally desirable; they are best able to meet the needs of the whole spectrum of displaced workers, not just those easiest to serve. However, different services may need special emphasis, depending on the local economic situation.

In a diversified urban industrial economy, most displaced workers will find jobs, given effective job search assistance that helps them crack the hidden job market, and training in new skills for those who want it and can benefit from it. Except in the troughs of recessions, there are usually jobs to be found in a deep, diversified labor market, even though it may take some time to find them. For example, even in Buffalo, with its long history of unemployment rates above the national average, the displaced worker project operating in 1982 and 1983 was able to place two-thirds of its clients.

More isolated urban centers with very narrow industrial bases—one-plant or one-industry towns—are in worse trouble when the plant closes or the industry declines. Steel towns like Youngstown and Portsmouth, Ohio are examples of industrial areas with shallow labor markets that have not come back to robust life with the resurgence in the economy. Rural areas dependent on mining, such as the Appalachian coal country or eastern Utah since the coal and uranium mining bust, may be very resistant to the best efforts of displaced worker projects. In areas that show no evidence of economic revival and seem too hopeless to provide new jobs, vigorous relocation programs may help some displaced workers.

In a prosperous local economy, many workers fare quite well with nothing more than relatively brief, inexpensive assistance in searching for a new job. In addition, a thriving economy may favor the acquisition of new skills. Opportunities are plentiful, so that displaced workers, with only modest retraining, can move in to entry positions as more experienced skilled workers move up. The advantages of forgoing an immediate job in favor of training may not be obvious, however, to adult workers accustomed to bringing home paychecks. Where there is a choice between training and a job, displaced workers often benefit from help in realistically estimating their earning potential with and without training.

In a depressed economy displaced workers may be more inclined to opt for training in new skills. When there are few jobs to be had, many workers find retraining more productive than idleness. From the perspective of public policy, funding needs for displaced worker programs may rise and fall with the state of the economy, not only because more workers apply for services during hard times, but also because training—the most expensive service—will likely be in greater demand.

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[32] Publications of the Bureau (formerly the Labor-Management Services Administration) include U.S. Department of Labor, Labor-Management Services Administration, *Plant Closing Checklist: A Guide to Best Practice* (Washington, DC: U.S. Government Printing Office, no date), and *Plant Closings: What Can Be Learned From Best Practice* (Washington, DC: U.S. Government Printing Office, 1982).

ISSUES IN THE DESIGN OF DISPLACED WORKER PROJECTS

A brief description of a typical displaced worker project will serve to introduce the elements of project design. Because Downriver is the oldest of current projects and has often served as a model for others, it is chosen for illustrative purposes here.

The first step is outreach: making project services known to displaced workers and inviting them to participate. Then, those who sign up must attend orientation, take a series of basic education and aptitude tests, and take part in a 4-day job-seeking skills workshop. The workshop helps workers identify their own skills and experience, learn to identify potential employers, produce resumes, and practice job interviews. The sequence in this first phase of Downriver's program is mandatory. Those who do not follow it are dropped. The intention is to screen out workers who are not committed to a whole-hearted job-seeking effort.

Once they are enrolled, participants follow different paths depending on their abilities and interests. Those who have salable skills may need only some sharpening of their abilities to search for jobs, or they may take advantage of job openings that the project's job developers find. Others, with good reading and mathematics skills, but without job skills that are currently in demand, may be referred to training courses. The idea is to reserve training for those who need it most and can benefit from it. A third choice is on-the-job training (OJT), in which employers receive a subsidy for hiring new workers, usually amounting to 50 percent of wages, and lasting for 1 to 6 months. At Downriver, OJT is not considered training —the acquisition of new skills required for a new occupation—so much as a placement tool.

The hardest workers to serve are those who lack marketable skills and are seriously deficient in basic educational abilities. For these workers, Downriver has experimented from time to time with remedial education, or looked for suitable OJT slots. Finally, Downriver includes in its package of services relocation and out-of-area job search assistance, for those who are able and willing to move.

The Downriver program follows a sequence in which the least expensive services are offered first. Putting the job search workshop early in the sequence tests participants' commitment and enables them to look for a job promptly, if they do not want or need the more expensive training or relocation services that come later in the program. Figure 6-1 shows the sequence of Downriver services, as presented to participants.

The hundreds of displaced worker projects recently created under JTPA Title III differ substantially; not all include the complete menu of services outlined above, although all these activities can be funded under the law. Nor do all of the projects follow the same sequence as Downriver, or require the same mandatory steps. Some, for example, require all participants to spend a few weeks in job search before they become eligible for any form of training. Some (probably a minority) do not require attendance at a job search workshop. Some offer financial and personal counseling as an integral part of project activities.

The experience of the six demonstration projects of 1982 and 1983 is a guide to comparative costs of the different services offered to displaced workers. These projects recorded outcomes as well as costs by type of service. In addition, the U.S. Department of Labor collected data on outcomes (entered employment rates and reemployment wages) by type of service from a sample of JTPA projects serving dis-

Figure 6-1.—Downriver Community Conference Economic Readjustment Program[a]

—How The Program Will Work With You—

Step by step	Activity	Explanation
You have been scheduled for a group kick-off session with DCC Staff	Orientation 2 hours	To expose you to general information and services this program can and cannot provide
You have been scheduled for group testing—we call it "Assessment For Experienced Workers"	"Assessment for Experienced Workers"	These tests will give our staff an idea of your interests and abilities
Individual appointments have been set up for each person. We know a lot of information is required—thanks for your cooperation	Intake and Enrollment Certification 1 for each participant	This session verifies your eligibility and formally enrolls you into the program
You will be scheduled for a specialized group workshop to fine-tune your Job Seeking Skills	Job Seeking Skill Workshop 4 days 8:30-4:00 p.m. Monday-Thursday	This workshop will expose you to the labor market. Tells you how to use resource material. Helps you to prepare for an interview. Helps you to develop a resume.
You get a day off—DCC Staff meets to review your case files	Assessment Then, an individual or group meeting with you will be scheduled this week	Counselors and job developers will review your skills, interests and aptitude and schedule an individual or group session to meet with you to discuss your options
Classroom Training	On-the-Job Training (OJT)	Resource Center Direct placement into jobs

[a] Program handout at orientation

SOURCE: Jane Kulik, et al., *Reemploying Displaced Workers: The Implementation of the Downriver Community Conference Economic Readjustment Program*, report to U.S. Department of Labor, Employment and Training Administration (Cambridge, MA: Abt Associates, Inc., 1982).

placed workers in the 9 months from July 1984 through March 1985 (tables 6-2 and 6-3).

Results reported by type of service must be judged with a good deal of caution. As discussed previously, placement rates and entered employment rates are not the only measures of success, nor always the best. For the demonstration projects, most of the outcomes were recorded soon after classroom training had ended, so that reported placement rates for this service may be too low. In addition, the favorable effects of classroom vocational training on earnings should become more apparent over time—not necessarily in the first job after training.

Conversely, reported placement rates for OJT may overstate the effectiveness of the service, because they are early reports; OJT contracts often *require* employers to retain the trainees for 30 days or more in order to receive payment. In the case of the Labor Department data, all outcomes are reported for just 1 day after placement. Another important caution, in comparing results by type of service, is that many projects (like Downriver) send their most job-ready clients directly into the job market, reserving training for those who need more help.

Keeping these caveats in mind, the results indicate that of the major types of service, job search assistance is least expensive; both OJT and classroom training cost considerably more per participant. Costs per placement for classroom training were far out of line in two demonstration projects, especially in Alameda County, where the project placement rates

Table 6-2.—Costs and Placement Rates by Type of Service, Demonstration Displaced Worker Projects, 1982-83

Major type of service	Project site Alameda	Buffalo	Lehigh Valley	Mid-Willamette Valley	Milwaukee	Yakima
Placement rates (percent):						
Job search assistance only	17.2	62.4	27.1	68.0	5.3[a]	80.8
Job search assistance and on-the-job-training	32.4	75.8	47.5	NA	87.0	92.5
Classroom training	16.5	57.1	38.9	47.7	—	46.7
Total	17.5	65.5	32.0	60.7	8.5[a]	80.7
Cost per participant:						
Job search assistance with and without on-the-job training	$1,132	$1,697	$ 533	$1,133	$ 128[a]	$1,882
Job search assistance only	NA	851	407	1,133	73[a]	1,387
On-the-job training only	NA	2,319	975	—	1,387	2,481
Classroom training with job search assistance	4,117	3,282	1,303	1,935	—	4,851
Classroom training only	NA	2,431	896	802	—	3,464
Total	$1,951	$1,975	$ 720	$2,349	$ 128[b]	$2,009
Cost per placement:						
Job search assistance and on-the-job training	$ 6,389	$2,521	$1,716	$1,665	$1,503	$ 2,198
Job search assistance only	6,234	1,363	1,499	1,665	1,384	1,716
On-the-job training	11,219	4,181	2,829	—	1,678	4,181
Classroom training	25,671	5,744	3,309	4,052	—	10,396
All participants	11,306	3,014	2,256	2,349	1,503	2,504

[a] This figure is not comparable with those for other sites, because the only services offered in Milwaukee were job development and on-the-job-training.

[b] This figure is driven by the large number of workers in the placement pool (see footnote a).

NA = Not available

— = Service was not provided.

SOURCE: Walter Corson, et al., *Process and Implementation Issues in the Design and Conduct of Programs to Aid the Reemployment of Dislocated Workers: Findings Based on the Dislocated Worker Demonstration Project* (Princeton, NJ: Mathematica Policy Research, Inc., report to the U.S. Department of Labor, Employment and Training Administration, 1984).

Table 6-3.—Entered Employment Rate and Reemployment Wage by Type of Service, Sample of JTPA Title III Projects, July-March 1985

Major type of service	Entered employment rate[a]	Average hourly reemployment wage
Classroom training[b]	65%	$6.31
On-the-job training	84	5.92
Job search assistance	70	6.42
Other services[c]	62	5.80
Overall	70%	$6.15

[a] The entered employment rate is based on participants terminating from the project's services.

[b] Classroom training includes basic education, vocational training, or a combination of the two, conducted in schools or training institutions.

[c] Other services include vocational or personal counseling, assessment services, preemployment skills training, and support services such as transportation.

SOURCE: U.S. Department of Labor, Employment and Training Administration, "Summary of JTLS Data for JTPA Title IIA and III, Enrollments and Terminations During January-March 1985," August 1985.

were extremely low. In the other, Yakima, only 15 out of 243 participants were enrolled in classroom training, probably too small a number to yield meaningful results. The results of job search assistance, in terms of immediate placements and wages on the new job were good; for many displaced workers, this service appears to provide effective reemployment help at modest cost. OJT shows high placement rates but lower reemployment wages than the other major services. This may reflect a selection factor (e.g., participants who are most job-ready get job search assistance and those who score well on aptitude and basic skills tests are selected for classroom training); or it may simply mean that OJT is used more heavily in lower wage sections of the country.

The discussion that follows does not cover every element of program design in a detailed or comprehensive way; instead, it treats issues that are of most interest to policymakers at all levels of government.

Getting Into the Program

Outreach

Often, displaced workers who could profit from reemployment and retraining programs never hear about them. Many adults with steady work histories are not accustomed to applying for government help (except for unemployment insurance), and may not be aware it exists. The surest way to reach the eligible workers affected by plant closings or mass layoffs is to offer assistance at the plant site before the layoffs begin. Other methods for reaching eligible workers include notices in the media, letters to individual workers, and personal contact. For example, when the LTV Steel Co. acquired a closed-down Crucible steel plant in Midland, Pennsylvania, it offered reemployment and retraining services to former Crucible workers, many of whom had been out of work for 2 years or more. The outreach method the Midland project chose was to knock on doors.

In times of prolonged economic distress, displaced worker projects may have no trouble reaching applicants. In fact they may be overwhelmed. In 1982, the Buffalo demonstration project was so swamped with applications that participants had to be chosen by lottery. Delaware had the opposite problem when it opened its displaced worker program in 1984. Displaced workers were scattered, rather than concentrated in large plant closings, and it took time for workers to become aware of the services. The local Employment Service (ES) rarely referred unemployed workers to the program. Not until the displaced worker project staff made positive recruitment efforts (e.g., placing posters, application cards, and drop boxes in ES offices) did eligible workers discover the services available to them. Delaware's Department of Labor has since established closer links between the ES and its displaced worker program.

Orientation

Workers are introduced to the project's expectations at orientation. This is the time to make clear what the project can and cannot offer. No one can offer assurance of a new job with as good pay and benefits as the old one. A fortunate few workers, usually the highly skilled, will do as well or better, but most will have to start new jobs at a sacrifice, even after retraining. If this fact is not clearly understood to begin with, everyone suffers; participants are disappointed or bitter, project staff are frustrated, and placement rates are low as workers wait for good jobs that do not materialize.

It should also be clear from the start that not everyone needs or can benefit from training. Some of the most disappointing outcomes of recent displaced worker projects were those in which training was oversold, or where participants were not tested and carefully matched with training opportunities.

At the same time, the project must offer workers better prospects than they have on their own. Downriver emphasized the staff commitment to finding jobs that offer acceptable wages to participants, keeping loss of earnings to a minimum. The Ford Milpitas project, in the heart of California's high-tech Silicon Valley, emphasized opportunities for advancement with retraining. One co-director (management) said:

> We told them, you'll start at lower wages (than the $12 an hour Ford paid). Your ability to rise will be based on your own skills; it won't be collective, through the union.

The other co-director (labor) said:

> Workers were hammered with the reality of facing options. You don't have to take training if you want an assembler's job at $4.50 an hour.

Screening

Some displaced worker projects, like the one at Ford's Milpitas plant and the Midland project sponsored by LTV, try to serve every worker who signs up. (In fact, the Midland project serves displaced workers' families as well as the workers themselves.) Others, like the dem-

Photo credit: UAW-Ford Employee Development and Training Program

The UAW-Ford Employee Development and Training Program has established several centers that offer a range of testing, job placement, and training services to displaced workers. Here, laid-off workers are attending an orientation session at a Detroit center.

onstration project at Yakima, Washington, screen applicants rigorously, saving their efforts for those considered most able or motivated to find jobs. Downriver and the projects modeled on it take an in-between position, weeding out applicants who do not attend the mandatory initial steps of the program.

Rigorous selection of participants has sometimes been criticized as creaming, that is, selecting for service the workers best prepared and most likely to get jobs on their own. The performance standard set forth in JTPA Title III—placement and retention in the job—might be thought to encourage creaming, but there is little evidence of this so far in JTPA-funded displaced worker projects, except for entry into some highly selective skills training courses. (See ch. 5 for further discussion of this issue.)

Financial and Personal Counseling

Many displaced workers benefit from counseling on their financial and personal situation as early as possible after losing their jobs. People who have worked all their adult lives may have little idea how to cope with the emotional shock of losing a job or the financial adjustments they have to make. Typically, displaced workers are unaware of what community social service programs have to offer, and are reluctant to ask for help. Counseling can acquaint workers with community resources that they may need, and can help them make financial plans to avoid losing their homes or other irreplaceable assets.

Displaced worker projects do not commonly provide personal or financial counseling themselves, but may refer clients to community agencies that do offer counseling. In a recent survey of 120 displaced workers at 10 sites in the northeast and midwest, the workers commented that not enough projects offer them help in contacting creditors, reorganizing their finances, and seeking financial aid to carry them through till they find a new job.[33]

Job Search Assistance

Job search assistance is offered in two forms: 1) job development and job matching, which are provided by the project staff; and 2) training the individual worker to find his or her own job. Job development by the project is valuable because so much of the real job market is hidden; jobs are filled by word of mouth or network, not through newspaper ads, private employment agencies, or the public Employment Service. Training for workers in finding their own jobs is valuable because so many displaced workers do not know how or where to look. Often, displaced workers have had just one job in their lives, and they got it by showing up at the plant gate.

Building Workers' Job Search Skills

Job search workshops are intended to give people skills in finding their own jobs, an asset that will last throughout their working lives. The aims of the workshops are to build confidence and motivation, as well as to teach practical job-hunting skills. Typically, the workshop lasts 20 hours, over 4 or 5 days, with the first session often spent in "skills identification." This exercise, in which workers list all the tasks they have performed and skills they have developed in their worklives, is intended to give people an emotional jump start, helping to raise the low self-esteem that so many workers feel after being laid off. The rest of the workshop sessions are devoted to learning skills in resumé writing, job interviewing, and locating potential employers.

Following the workshop, most programs provide a resource center for self-directed job search, outfitted with a telephone bank, telephone and business directories, newspaper classified advertising sections, and a bulletin board with listings of job openings from local government offices and the local Employment Service, and often from program participants who wish to share information they have uncovered. Resource centers work best when they are located on the same premises as the rest of the program, and when they have a full-time knowledgeable staff.

Highly structured job clubs, often the subject of favorable publicity, did not work very well for the demonstration projects that tried them. They were expensive and usually not very popular. In the most rigid version of the job club approach, a group of a dozen people meet 8 hours a day for 4 weeks, spending the first 2 weeks in classroom preparation and the next 2 intensively working the phones. Members of the club continuously cold call employers for job leads, relying on support from each other to keep going through discouragements.

Downriver tried job clubs, found they diminished the participants' initiative, and abandoned the high-pressure system in favor of a lower key, self-directed job search, using the help of the resource center. One demonstration project, Lehigh Valley, also reported good results with a more relaxed version of the job club.

Job Development

One of the most useful forms of assistance a displaced worker project can offer is to discover job openings that are never publicly announced. Plant-based projects, as the Canadian IAS experience demonstrates, are especially effective in finding jobs in the hidden job market. In the United States, the sweep of area employers performed by the Johnson & Johnson team (see box 6A) was typical; the Dana Corp. team, the Ford Milpitas team, and a number of others have used similar techniques.

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[33] Gale Zahniser, William L. Ashley, and Lawrence W. Inks, *Helping the Dislocated Worker: Employer and Employee Perceptions* (Columbus, OH: The National Center for Research in Vocational Education, Ohio State University, 1985).

Plant-based job development is especially helpful to unionized displaced workers looking for jobs in a non-union environment. Dislike and fear of unions can be a powerful deterrent to hiring. This was true in Plainfield, New Jersey, in 1961, when the Mack truck plant closed. It was true in Cortland, New York, in 1977, when the Brockway truck plant closed (indeed much of the town blamed the union for the closing); and it was true in Edgerton, Wisconsin, in 1981, and in Chicago and San Jose in 1983.[34] The Johnson & Johnson team invited neighboring company managers to lunch to meet displaced workers "to show them," said the co-director of the team, "that our union folks are not ogres."

Continuing displaced worker programs can also achieve good results in job development, especially when they earn the confidence of local employers in their ability to screen workers for job openings. Successful job developers keep in personal touch with local employers, selling their services by offering to save employers the trouble and expense of interviewing numerous applicants. With the project doing the screening and referral, the employer need see only a few well-qualified people.

Faced with a depressed job market (either cyclical or structural), some displaced worker projects have tried unconventional ways of finding jobs. Lehigh Valley, in the depths of the recession, hired advertising agencies to market the program to the business community. The staff believed that this marketing effort did elicit calls from employers. Several projects considered enlisting private employment agencies, but only Buffalo tried it. Unfortunately, it produced no jobs. Possibly, the agencies' inexperience with blue-collar workers accounted for the lack of results. In 1982, when unemployment in the Detroit area was above 18 percent, the Downriver project staff attempted to create jobs. They provided assistance to small and medium-sized plants in getting military contracts—the only new business available at the time.

Job Matching

This essential service can be provided in a number of effective ways, from simple hand-sorting of files to elaborate computerized systems. For example, Downriver is experimenting with a highly automated keyword system, which breaks down job titles into relevant skills, codes participating workers' skills, and then matches workers with job openings on the basis of the skills match. While preparing to adopt the automated system, Downriver job developers simply sorted clients' forms into 27 occupational categories, and stored them in file folders.

Some projects have found that modest homemade automated systems work quite well. The Ford Milpitas project, for example, began by entering every worker's test scores, interests, and background on the plant's large mainframe computer. When the plant closed and the mainframe was moved out, project staff found they could store enough information on a small personal computer to sort and pick out likely candidates for new jobs or training courses. Similarly, the Mid-Willamette demonstration project found a personal computer quite adequate for storing and sorting clients' files.

On-the-Job Training

In practice, on-the-job training is often an effective tool more for placement (and sometimes for economic development) than for the acquisition of new transferable skills. The typical subsidy to employers for trainees is 50 percent throughout the training period, which may last from 1 to 6 months. Often, OJT contracts require that the worker remain on the job for 30 to 90 days, with some of the payment contingent on retention; in some cases, however, there is simply an understanding that workers are to be kept on.

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[34] John W. Dorsey, "The Mack Truck Case: A Study in Unemployment," *Studies in the Economics of Income Maintenance*, Otto Eckstein (ed.) (Washington, DC: The Brookings Institution, 1967); Robert Aronson and Robert McKersie, *Economic Consequences of Plant Shutdowns in New York State* (Ithaca, NY: Cornell University, New York State School of Industrial Relations, 1980); and OTA interviews with directors of reemployment programs of the Dana Corp., Johnson & Johnson, and the Ford Milpitas assembly plant.

High initial placement rates make OJT an attractive option to many service providers, and also to workers who want to get back on the job as soon as possible. In the JTPA Title IIA program, OJT is increasingly popular.[35] Information is less complete for Title III. Most State programs report that OJT is included in their service mix; probably about one-fourth of clients use it.[36] Some projects do not offer it at all.[37] Possibly the reason is that the experienced adult workers served by Title III programs can often be placed without an OJT subsidy. The subsidies seem to be most effective in placing workers in small and medium-sized businesses.

Vocational Skills Training

For 25 years, many experts have prescribed training as the sovereign remedy for structural unemployment of displaced workers. With the computer revolution of the late 1970s, and the simultaneous increase in worker displacement, prescriptions for training became more insistent. The idea gained currency that if people were being displaced by robots, they had better learn to tend the robots.

A few years of recent experience with displaced worker programs have made the point that the training idea, in this form, was oversimplified and oversold. Whatever part technological advance may have in the displacement of workers (there are other factors of at least equal importance, as discussed elsewhere in this report), new jobs to replace those permanently lost are not necessarily high technology and do not always involve retraining.

Experience so far also teaches that a minority of displaced workers—perhaps 20 to 30 percent in well-run projects—are likely to choose and to benefit from vocational skills training. This is not, however, an inconsiderable number. While vocational training may at times have been overemphasized, it remains an essential part of the service mix for displaced workers. For many semiskilled blue-collar workers whose old jobs have permanently disappeared, training in new skills is the best chance to recapture the ability to command good wages. Displaced worker projects can open that opportunity to many people who would not find it on their own.

Course Selection

One of the most demanding tasks in setting up a skills training program is choosing the right courses—ones that teach skills that are in demand. As chapter 5 discusses in more detail, information about the occupations in demand in local labor markets is likely to be incomplete.

In the six demonstration projects, despite attempts by the staff to choose training courses realistically, most graduates did not get jobs related to their training. These projects were all short-term, lasting just 1 year, so there was no time for a survey of employers to discover what occupations were locally in demand. Typically, the project staff first tried to identify occupations in demand by using State labor market information, which usually turned out to be insensitive to local job markets and somewhat out-of-date. By necessity, most of the projects then turned to information from the project's job developers, training providers, and Private Industry Councils, which represent local business. The fact that trainees in these projects graduated in the depths of the recession was no help.

Downriver had time for a more systematic approach. The planning staff studied trade journals, reviewed economic forecasts from local universities, and analyzed labor market data collected by State agencies to identify local trends. Job developers checked the planners' results, interviewing local employers and querying trade associations. Downriver did not report specifically on training-related placements, although the overall record for placements

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[35] Gary Walker, Hilary Feldstein, and Katherine Solow, *An Independent Sector Assessment of the Job Training Partnership Act, Phase II: Initial Implementation* (New York: Grinker, Walker Associates, 1985), pp. 25-26.

[36] See ch. 5 for details.

[37] Robert F. Cook, et al., "Transition Year Implementation of the Job Training Partnership Act," a report prepared by Westat, for the U.S. Department of Labor, Employment and Training Administration, 1985, pp. 9-40 to 9-41.

Photo credits: Downriver Community Conference

Training courses for displaced workers include a wide range of occupations, from repair of electronic equipment to landscaping.

after classroom training appeared favorable in Phase One. (In Phase Two, nothing worked very well.) High-technology training, however, did not come off very well. Workers who took specially designed programs in numerical control machine operation and electronics fared substantially worse in finding jobs than trainees in more traditional skills. One reason may have been that the high-technology courses were new and the trainers inexperienced. In addition, however, Downriver program staff believed they may have been ahead of the market in developing some of their classroom programs. Demands for some skills grew more slowly than anticipated.

In Buffalo, results of three out of four high-technology training courses were dismal. In courses on copy machine repair, microprocessor/microcomputer repair, and digital telephone maintenance, placements related to training were below 20 percent. Training-related placements for medical word processing, on the other hand, were nearly 60 percent.

Table 6-4 summarizes the subjects offered in class-size training (i.e., courses set up especially for the displaced workers) in the six demonstration projects and Downriver's Phases One and Two. More than half the classes offered were in some kind of repair and maintenance, both traditional (e.g., truck engines) and high-technology (computers, microprocessors, robots). Training in the high-technology area was prominent in all the projects. These skills were thought to be in demand, and also to offer the best chances for advancement. In addition, there was probably an element of fashion in the course selection. In the absence of any very certain knowledge about the labor market (especially while the economy was stalled in deep recession), planners tended to select something new.

With more experience, projects are changing their course selections. Downriver has dropped its highly demanding robotics course, finding that the auto manufacturers are mostly training robotics technicians drawn from among their own active work forces.[38] Simpler, but still

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[38] In fact, much of the worker training involved in the use of new technologies may be occurring in the workplace, with active workers (not new hires) the trainees. The California Employment Training Panel, which helps the State's employers retrain active employees as well as supporting training projects for unemployed workers, reports that more than half the projects it funded in 1983 and 1984 involved some form of computer technology.

Table 6-4.—Class Size Training Provided in Displaced Worker Projects[a]

National Demonstration Projects, 1982-83

Alameda:
Air-conditioning/refrigeration services technician
Automative technician
Cable TV installer
CAD/CAM drafting technician
Certified welding
Computer technician
Digital technician
Electronic technician
Microwave technician
Welding technician
Word processing

Buffalo:
Computerized numerically controlled machines
Copy repair technician
Floor mechanic
Heating, ventilation, air-conditioning repair
Microprocessor/microcomputer technician
Small engine repair
Telephone repair
Truck mechanic
Word processing (medical)

Lehigh Valley:
Computer services
Computer technician
Computers and business systems marketing
Floor covering

Mid-Willamette Valley:
Computer-assisted drafting
Computer operations
Electronics technician
Welding

Southgate:
Air-conditioning and refrigeration repair
Automotive and diesel mechanics
Cable TV installer
Computer operations and service
Dietetic technician
Industrial computer maintenance
Machining
Motorcycle mechanic

Yakima:
Industrial computer maintenance

Downriver Community Conference, 1980-82:

Phase One (1980-81):
Electronics
Energy auditor
Heating and cooling
Machinist
Numerical control
Pipe welding
Screw machine

Phase Two (1981-82):
Accountant
Building operations management
Computer/data processing
Drafter detailer
Electronic technician
Industrial sales
Machine tool
Robotics
Technical preparation[b]
Welding/welder-fitter
Word processing management

[a] "Class size training" is training in classes that are designed especially for participants in displaced worker projects.

[b] "Technical preparation" was a 4-week course in reading and math, to prepare workers for skills training courses.

SOURCES: Mathematica Policy Research, *Case Study of the Alameda County and Southgate Dislocated Worker Demonstration Projects*, Jack Wichita, *Case Study of the Milwaukee Dislocated Worker Program*, *Case Study of Operation Jobsearch: The Lehigh Valley Dislocated Worker Demonstration Project*, and *Case Study of Project S.A.V.E.: The Yakima, Washington Dislocated Worker Demonstration Program*; L.M. Wright, Jr., *Case Study: Buffalo Worker Reemployment Center, Buffalo, New York* and *Case Study: Mid-Willamette Valley Job Assistance Network, Salem, Oregon* (Princeton, NJ: Mathematica Policy Research, 1984); Marcia Jerrett, et al., *Serving the Dislocated Worker: A Report on the Dislocated Worker Demonstration Program* (Cambridge, MA: Abt Associates, 1983); and Walter Corson, et al., *Process and Implementation Issues in the Design and Conduct of Programs to Aid the Reemployment of Dislocated Workers: Findings Based on the Dislocated Worker Demonstration Project* (Princeton, NJ: Mathematica Policy Research, 1984).

exacting courses in repair of electronic devices (office computers, copiers, vending machines, radios and TVs) are being offered in a number of projects with good placement results.

For example, the Delaware Technical Community College offers an 18-week concentrated course in electronic repair that begins with basic electrical circuitry and proceeds to electronics. In a graduating class of 15 displaced workers in 1984, all had jobs within a month at an average wage of $7.02 (the average wage on previous jobs was $10.33). Both large and small firms were hiring these graduates of a short, intensive course, at lower wages than they would pay a graduate of a 2-year associate degree course, and then training them further on the job with possible pay advances in the future. One reason for the success of this course is that the director was careful not to train too many candidates at once. It would be easy to flood the receptive but limited local market for these modestly trained technicians. Short courses in telecommunication installation and repair are also working out well. With deregulation of the telephone system, there is a proliferation of small telecommunication firms, many of whom are willing to take on graduates of short courses at modest wages.

Downriver, though it is now emphasizing high-technology training less than in its earlier days, continues to offer a 27-week training course in electronics and computer repair. Graduates generally make no more than $4.50 to $6 an hour to start, but usually can work up to $8 or more within a year.

Several projects in addition to Buffalo have found that training in high-technology clerical skills appears to pay off. For example, in 1983, when the San Francisco Blue Cross-Blue Shield office decided to move 400 jobs (mostly claims processors) to low-cost, low-wage towns in California's central valley, a labor-management adjustment committee arranged several options for training the laid-off workers. Thirty workers selected a 4-month course in word processing, offered by a private training contractor. All graduates were placed, at wages averaging $7.44 per hour, compared with $7.46 to $9.55 per hour on the old jobs.

The vocational training offered in JTPA Title III projects for displaced workers covers a very broad range of skills and occupations, some high-technology but many in quite traditional fields. State directors of Title III programs, surveyed in 1984-85, mentioned 50 or more kinds of training as examples of what their programs were offering.[39] As table 6-5 shows, the list ranges from landscaping and upholstering to data processing and computer repair.

JTPA's statutory requirement of performance standards has led some projects to adopt a new mode of course selection. Project staff make the initial choice of courses, either together with the local Private Industry Council (PIC) or with the PIC's approval. Then, the training contract is put out for bids, with the proviso that trainers themselves must meet performance standards. In a sense, this transfers the performance requirement to the trainers. A typical contract may require that, for the trainer to receive final payment, 75 percent of graduates find full-time jobs, with all but 10 percent of the job training-related; that the starting wage be no lower than $4 to $5 per hour; and that trainees be retained on the job for at least 30 days.[40]

About half the States (24 of 46 responding to the question in OTA's telephone survey) use performance-based contracts in their JTPA Title III programs, and 11 use them predominantly. Reliance on this kind of contract appears to be growing. In a sample of 40 Service Delivery Areas providing JTPA Title IIA services to disadvantaged workers, 27 reported in late 1984 that they used performance-based contracts to ensure accountability of training institutions. Six of the twenty-seven said they had only recently adopted this kind of contracting.[41]

Table 6-5.—Examples of Vocational Training Offered in JTPA Title III Displaced Worker Projects, 1984-85

- Aircraft mechanical operations
- Airline attendant
- Air-conditioning and heating mechanic
- Asbestos handler
- Auto mechanic
- Bank teller
- Boat building
- Bookkeeper
- Cabinet maker
- Cable splicing
- Carpentry
- Casino worker
- Chemical operator
- Clerical and office work
- Computer repair, maintenance
- Construction
- Culinary arts
- Data processor
- Day-care worker
- Drafting
- Diesel mechanic
- Electronics
- Energy conservation work
- Fisherman
- Golf course mechanic
- Health and medicine
- Heavy equipment operator
- Hotel-motel manager
- Industrial maintenance
- Industrial sewing
- Institutional attendant
- Iron pourer
- Lab technician
- Landscaping
- Machine tool and die
- Machinist
- Mechanical, electrical engineer
- Office machine service
- Printing and publishing
- Real estate
- Retail trade
- Security guards
- Statistical process control
- Telephone technician
- Truck driving
- Tourism occupations
- Upholsterer
- Welding
- Xerox technician

SOURCE: OTA telephone survey.

So far, it appears that performance-based contracting is an effective way to make sure that skills taught in training courses are in demand, and that the trainers do a good job of teaching the skills. It also reassures students of the worth of the program. It also has a pronounced effect on selection of students. Trainers who do not get paid if they do not find jobs for their graduates have a powerful incentive to select students with care. Both common sense and experience teach that it is a great mistake to admit people to training if they lack the necessary basic educational skills or aptitudes. Yet selection that is too rigid amounts to creaming. Some projects try to guard against too-rigid selection criteria by requiring trainers to explain their reasons if they reject applicants who were approved for training by the project counselors.

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[39] See ch. 5 for further discussion of survey results.

[40] Contracts requiring 100-percent placements are rare. The California Employment Training Panel requires them, but in practice allows some flexibility. If the 100-percent rule is rigidly enforced, trainers must include some leeway in their contract price.

[41] Cook, et al., op. cit., p. 10-21.

Selection of Trainees

In most projects, selection criteria for people going into training are that they need it (do not have marketable skills), can do the work (have passed the requisite tests), and will not have to drop out for lack of income support. Some well-financed projects do not impose the first requirement. The Ford Milpitas project, for example, encouraged everyone to take appropriate education or training, whether English as a second language, remedial reading or mathematics, or a demanding 9-month course in mask design (computer-aided etching of circuits on microchips, through the sequential use of stencil-like masks).

Projects that drop the second requirement—testing for appropriate placement—do so at their peril. This does not mean that only a select few can be admitted to training. Some projects that are committed to training have been able to devise an array of vocational training courses—combined, where necessary with remedial courses in reading and math—that suit a broad range of skills and aptitudes. Nor does it mean that projects must immediately confront displaced workers with a battery of tests. Academic tests can be extremely intimidating to adult workers who are years away from classrooms. Projects that are successful in providing training first orient their clients to all aspects of the project, including an explanation of why testing is necessary for proper placement of workers who are interested in vocational skills training.

An example of training with little attention to selection was the Southgate project in the Los Angeles area. Begun with the best of intentions, the project ended in stress, waste, and for many workers, bitter disappointment.

The General Motors assembly plant in Southgate closed in March 1982, laying off 4,300 hourly workers. A modest retraining and reemployment project, begun a few months after the closing, was greatly expanded in September 1982, when General Motors, the United Auto Workers, and the State of California signed an agreement to underwrite the project.

Training was a major element of the expanded project; 45 percent of the 1,682 participants enrolled in the 28 classes offered. But it was hurriedly put together, in an attempt to complete training while workers still had unemployment insurance and Trade Adjustment Assistance (TAA) income maintenance. As a result, classes started with teachers unprepared and books and equipment missing; at least 10 of the classes had to be extended. Most of the courses were technical, in fields in which employers require credentials such as work experience or a certificate from a credible training institution. Southgate's program was not able to provide either.

The demanding content and fast pace of many of the courses required substantial homework and good basic skills in reading and mathematics. Unfortunately, most of the students, although hard working and highly motivated, were unprepared. They had not been screened for their basic educational skills; furthermore, trainers were eager to enroll students and were not very selective.

In the end, 30 percent of classroom trainees dropped out. Few of the trainees who stuck with it got jobs related to their training. Altogether, by September 30, 1983, the Southgate project had placed only 60 workers in jobs—3.6 percent of the participants. (Another 366, or 22 percent, were recalled to other GM plants.) This may not be a fair indication of the project's results, since it continued past that date. However, it had been in existence for 12 months at the time the results were reported.

In a project in Alameda County, California, serving mostly workers displaced from the GM assembly plant at Fremont, the dropout rate from training courses was even higher than Southgate's—50 percent. Like Southgate, the Alameda County project was not selective in placing workers in training courses; the courses also were set up hurriedly, and trainers were not required to place graduates.

Alameda County's placement rate was 17.5 percent, with another 19 percent getting recalls. Other factors probably contributed to the poor results: the GM workers had high supplementary unemployment benefits during the life of the project, and rumors persisted that the plant would reopen. In fact, GM and Toyota did eventually form a joint new venture (New United Motor Manufacturing, Inc., or NUMMI), which opened a refurbished assembly plant at the Fremont site in 1985.

According to State of California records, the Southgate and Alameda County projects combined spent $8.3 million in the year November 1982 through October 1983.[42] During that time, 511 of 3,448 participants found new jobs; another 983 were recalled to other GM plants. The cost per placement in both projects combined (omitting recalls) was approximately $16,000. This compares with a range of $1,500 to $3,000 per placement in five demonstration displaced worker projects operating at approximately the same time in other parts of the Nation.[43]

The Southgate and Alameda County experiences are sometimes cited as evidence that "training doesn't work" for displaced workers, especially semiskilled workers. This conclusion is not warranted. It can only be concluded that training was ineffective under the circumstances of those projects. One of the major circumstances was failure to test and screen participants adequately.

Experience in the Ford Milpitas project points to some quite different lessons. This project was just as committed to training as Southgate, but took pains to match workers with suitable training. Everyone who wanted training was tested. Those adequately prepared could go directly into skills training, but still had to be selected by trainers. Most of the training was under performance-based contract, and trainers could be highly selective. For example, when San Mateo Community College offered a course for microwave technicians, more than 100 people applied for it; 25 were selected. The project staff later established another microwave technician class in a private technical institute.

Table 6-6 summarizes the skills courses offered by the Ford Milpitas program. Not all the courses required a high level of basic education; for example, courses in landscape gardening did not. Some were high-technology (such as mask design and CAD-CAM drafting), but many were in more traditional areas. Silicon Valley has a great many small metalworking job shops doing work to order for high-technology firms; the shops were willing to hire entry-level machinists, trained in the project's 6-month course, at $6 per hour. With experience and further training, many of these machine tool operators could expect to work up to very good wages (the better paid machinists in Silicon Valley make upwards of $18 per hour).

Table 6-6.—Class Size Training Provided by the Ford/UAW Program at Milpitas, CA, 1983-84[a]

Auto service technician
Bus driver
CAD drafting
Computer repair
Electronic technician
Heating, air-conditioning, refrigeration
Heavy equipment operator
Landscaping
Machinist
Microwave technician
Plant maintenance mechanic
Semiconductor mask design
Truck driver
Welding

[a] "Class size training" is training in classes that are designed especially for participants in displaced worker projects.

SOURCE: The Local UAW-Ford Employee Development and Training Committee, Milpitas, CA.

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[42] For data comparing the Alameda project with the five other demonstration projects, the period October 1982-September 1983 is used. Sources are reports by Abt Associates and Mathematica Policy Research. See table 1. A different source, records of the State of California cited below, provides details on costs of both the Alameda and Southgate projects; these records cover a slightly different time period (November 1982-October 1983), and show slightly different figures for participants and outcomes.

[43] State of California, Health and Welfare Agency, Employment and Development Department, "General Motors/United Auto Workers/State of California Reemployment and Retraining Program, November 1, 1982-October 31, 1983," report prepared for Joint Legislative Budget Committee (Sacramento: 1984). See also Mathematica Policy Research, op. cit.; and Jay Mathews, "Retraining '83—The Class in Room E221," *The Washington Post*, Nov. 6-9, 1983.

Participants in the project who did not get into skills courses at first had another chance. Of the 770 people who took part in the project's unique remedial education program, 341 later went into skills training. Altogether, 748 people, or 37 percent of all those who signed up to participate in the program activities, took vocational skills training courses.

Although overall placement results of the training program are not all recorded, the dropout rate for training courses was low—about 8 percent, and most of those left to take jobs. Only about 2 percent were real dropouts from the program. Project staff were satisfied that most trainees would be placed in training-related jobs. The only failure they knew about was a welding course; placements from it were low, possibly because of the recession.

The Ford Milpitas project demonstrates how it is possible to be selective in assigning people to training courses without being overly exclusive. The extensive range of courses offered, and the excellent remedial courses for people who lacked basic skills, made it possible for workers who wanted training to get it.

Design and Scheduling of Courses

Many displaced worker projects try to offer some skills training courses that are compressed into periods of less than 1 year. Displaced workers are adults, and most are responsible for earning a living for themselves and their families. Few have the luxury of more than the standard 6 months' eligibility for UI to spend in full-time training courses—less the time it takes for admission to a displaced worker project before training, and placement afterwards. It is for this reason that Downriver persuaded a local community college to compress its 2-year associate degree in electronics into 9 months; that the standard training course for displaced workers in Illinois is 22 weeks; and that the Delaware Technical Community College has created an 18-week course in electronics repair.

The shortening of technical courses generally means that the trainee cannot cover as much ground as a full-time student can in the usual 2-year course for an associate degree or a technical certificate. Displaced workers finishing brief courses usually cannot command entry wages as high as young technicians armed with degree or certificate, but they can get back to work sooner.

A common observation by the staff in several projects and in several training institutions is that displaced workers do better with their peers, in class-size courses designed specifically for them, than in established classes with youths just out of high school.[44] The displaced workers tend to go at a slower pace, need more explanation and repetition, and appreciate the rapport with and support of their coworkers from years past. In addition, class-size courses designed for displaced workers may be more conveniently scheduled than academic courses. A number of community colleges, however, now offer training modules which individual students can enter once a month or even more often.

In the Ford Milpitas project, which had much greater participation in training than most projects, workers definitely preferred class-size over regular courses. This was not a foregone conclusion. Community colleges abound in the San Jose area. Factory workers do not seem intimidated by them; often their sons and daughters go there. Tuition was not a problem; it was mostly free at that time in California and where there were fees, the project had money from the Ford/UAW fund to pay them. However, of the 1,997 workers who signed up for services, only 205—about 10 percent—chose established courses in educational or training institutions; 543 or 27 percent, chose class-size courses offered either by private trainers or local community colleges.

Income Support

JTPA programs discourage stipends for trainees. Even though stipends are mentioned in the law as an allowable expenditure, they are

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[44] Class-size courses are established for workers in displaced worker programs and are open only to them. They are usually designed for about 15 to 25 students; trainers generally require an agreed-on minimum enrollment before offering the courses.

Photo credit

Displaced workers in California are learing to repair tractors.

rarely provided in Title III programs. Adult displaced workers who desire training must find some other way of supporting themselves; indeed, in most projects one of the criteria for selecting displaced workers for training is that they have income to see them through. Other family members, or part-time jobs, may provide some of the necessary support. For the displaced workers who are eligible for it, UI is usually an essential part of the package. Few can count on more than the basic 26 weeks of UI. Extended benefits, providing an extra 13 weeks, were in effect in 1985 only in Alaska, West Virginia, and Puerto Rico. Federal supplemental compensation, enacted during the recession, has been ended. Moreover, for the average worker, UI may provide less than a bare minimum income, considering that in 1984 the average weekly benefit was $119.

The Trade Adjustment Assistance (TAA) program provided income support for workers in approved training for up to 18 months, but was open only to workers certified as having lost their jobs because of foreign competition. TAA authorization lapsed in 1985, and may be revived (see ch. 5). A minority of workers are eligible for supplementary unemployment benefits (SUBs) under union contracts, but even those eligible sometimes do not collect. SUBs are paid only until funds set aside for them run out, which has happened in a number of instances when plant closings were preceded by long layoffs.

It is not easy to set up worthwhile training courses that coincide with the 6 months that UI benefits last. Participants have to enter the displaced worker program early; assignments to training must be made expeditiously; courses often have to be truncated or compressed. Some projects, managing to do all this, were still beset by additional problems of keeping workers on the UI rolls, at least in the early days of the Title III program. JTPA unequivocally directs States to maintain UI benefits for displaced workers who take advantage of "training opportunities" the States have identified; the Department of Labor has underscored this mandate with one of its few directives to States on JTPA. Most, if not all, States understand the plain meaning of the law and directive, which is that workers enrolled in a training course underwritten by JTPA funds do not have to be "available" for work but are eligible to keep on receiving UI while in training. Still, in some cases, local ES offices misunderstood the directive and cut trainees off the UI rolls.

When JTPA funds are not involved, the situation is not so clear. In the 1970 amendments to the Federal Unemployment Tax Act, Congress directed States to maintain UI eligibility for workers attending training courses approved by the State. Some States escape the requirement by not approving training courses that are paid for by non-JTPA money—private sources such as the 5-cents-an-hour funds that are set aside for training under GM and Ford/UAW contracts, or possibly the workers' own funds. Other States, while they do not positively deny UI benefits to workers in training, do not draw the workers' attention to the fact that they may be eligible. Of 44 State Title III program managers responding to OTA's telephone survey, 20 said their States allow UI eligibility for unemployed workers in full-time training not funded by JTPA, 17 gave a conditional answer, and 7 said their States do not allow it.

Some States are reluctant to approve UI eligibility for workers in full-time training because they believe they must be conservative in managing their UI funds. During the three recessions of the past 10 years, many States went heavily into debt to the Federal Government to keep their trust funds solvent. At the beginning of 1985, 21 States still owed $9.8 billion in Federal loans (down from $13.2 billion a year before). Congress has directed the States to repay their loans expeditiously.

A bill (H.R. 1947) to encourage States to approve training for workers collecting UI benefits was introduced by Representative Kennelly and four cosponsors in the 99th Congress. The bill would allow UI payments made to workers in training to be credited against any interest a State owes the Federal Government for loans to their UI trust funds. The bill would also direct the Secretary of Labor to help States develop criteria for approval of training programs open to people receiving UI benefits.

Unlike many States, California has had a surplus in its unemployment trust fund for years. For a time, California workers enrolled in training courses were permitted to receive UI benefits for 52 weeks, so long as they were in approved training courses. Taking advantage of these extended UI benefits, plus SUBs, the ex-Ford Milpitas workers taking a tough 9-month class in mask design were able to stay the course. Twenty-two of the original 24 graduated. A bill in the 99th Congress (S. 395) would allow any State to extend unemployment insurance for workers in training an extra 10 weeks, at Federal expense.

Prolonged income support can, however, also have perverse effects. A common observation by project staff is that workers who are expecting recall, or are collecting generous SUB payments, are not likely to participate in displaced worker programs. Instead of using the time that income supports last for an intensive job search or retraining, some workers simply wait for something to turn up. Depending on the jobs available, some workers have to make quite a financial sacrifice in going back to work. Consider, for example, the situation of a worker who formerly made $10 or $12 per hour, can now find nothing better than jobs paying $4 to $6 per hour, and is covered by UI and SUBs that replace (for a time) 90 percent of his old wage.

Some collective bargaining contracts include a provision that makes it less costly for such a worker to start a new low-paying job. The Ford UAW contract, for example, allows workers to collect SUBs to make up most of the difference between their old wages and the lower wages in new jobs, until their SUBs run out. This arrangement has the advantages of getting people back to work, giving them experience in new jobs from which they can advance, and allowing them time to recoup some of their earning power. Directors of the Ford Milpitas project urged workers to use this strategy, and they believed that it worked, since participation in training was so high. Similar in purpose is a suggested scheme for a new worker insurance system, to compensate workers for a part of the difference between wages on old jobs and lower wages on new ones. The compensation would last only for a fixed transition period, and participation might be limited to older, more experienced displaced workers.[45]

In the 99th Congress, a bill (H.R. 758) introduced by Representative Stark would allow various forms of extra income support from the UI system for workers in training. First, it would authorize States to pay partial UI benefits to part-time workers enrolled in approved training courses; this "short time" compensation would be available only to workers in industries with declining employment. If the worker in training were on the job half time, for example, he would be eligible for half his full weekly UI payment. The bill would also allow States to extend the amount and period of UI payments, for workers who elect to take approved training. In addition, it provides for supplemental payments from the UI fund to workers who take jobs at a lower wage than is required under the State's UI law. The payments could amount to as much as 80 percent of the total UI benefits the worker could collect if he were unemployed, and could last as long as 1 year. The aim of the last provision is to ease the transition from a higher paying job to one that pays less, but gets the worker back on the job and, possibly, in a position to recoup earning power.

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[45] Alice M. Rivlin (ed.), *Economic Choices 1984* (Washington, DC: The Brookings Institution, 1984), p. 150. See ch. 2 for a discussion of this and similar proposals.

Another approach to income support for displaced workers in training was proposed by Malcolm Lovell, a former undersecretary of labor and guest scholar of the Brookings Institution.[46] His proposal is, first, to define displaced workers as laid-off employees who have 4 years of employment covered by a State UI system and is certified by their former employers as being unlikely to return to work for that company in the next 6 months. Then, the certified displaced worker would be offered a choice between proceeding independently to find a new job (in which case he or she would be eligible for regular UI benefits and other State or private assistance plans) and taking part in a new displaced worker program. The worker would have 4 weeks to decide between the two options.

The new program would consist of a required sequence, in which the worker would first go through several months of job counseling and job search assistance and training. If no suitable job were found during this period, the participant could then go on to education or training, with a voucher providing full tuition for short courses and partial tuition for longer ones. Some extended income support would be provided beyond regular UI; it would be paid from a special trust fund, supported by a 1-cent-an-hour tax on employers and employees. Income assistance would be limited by the amount in the trust fund.

An approach tied more closely to existing systems was proposed in a staff paper of the National Commission for Employment Policy.[47] It suggested that by the 13th week of covered unemployment all UI claimants should be interviewed, and those identified as displaced workers would enter a sequence of services structured to encourage reemployment. Workers determined to need training could enter training courses any time after the assessment, and would be eligible for 13 weeks of extended UI benefits for income support—even if the State's unemployment rate was not high enough to trigger the extended benefit program.

The potential of government-provided financial aid to students to help provide income support for displaced workers, or other adults who need to prepare for job or career changes, is discussed briefly in chapter 7.

Availability of Jobs

Some projects have observed greater interest in skills training during economic hard times than in prosperity. For example, in Downriver's Phase One (1980-81), 45 percent of participants entered training. In Phase Two, during the 1982-83 recession, 75 percent signed up for courses. Participants in the two phases differed little in age and education. With recovery, in 1984, the proportion of Downriver clients taking skills training dropped to about 30 percent. There may well have been other reasons for the changing service mix at Downriver, but anecdotal evidence from other projects tends to confirm that, when no jobs are available, many workers are more inclined to consider training.

What this suggests for Federal policy is that, in recession, displaced worker projects may encounter an upsurge of requests for vocational skills training by clients. Since classroom training tends to be more expensive than other services, higher funding would be needed to serve the same number of workers, assuming that requests for training were granted for all the workers able to benefit from it. It may well be in society's interest to grant such requests. Displaced workers who spend a period of unemployment learning new skills—or in remedying basic skills deficiencies—rather than simply collecting UI benefits, may considerably improve their chances of finding a satisfactory new job when the economy recovers.

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[46] Malcolm R. Lovell, jr., "An Antidote for Protectionism," *The Brookings Review*, fall 1984.

[47] Stephen E. Baldwin and Ann Donohue, "Displaced Workers: New Options for a Changing Economy," paper presented at the Fifth Annual Research Conference, Association for Public Policy Analysis and Management, October 1983 (Washington, DC: National Commission for Employment Policy, 1983).

Remedial Education

In Downriver's first two phases, 60 percent of participants had a high school or post-high school education; at the same time, 20 percent of the participants scored below sixth-grade level on standard reading and mathematics tests. Likewise, in the Alameda County program, most participants were high school graduates, but their scores on a standard education test were comparable to those of sixth- and seventh-grade students. At the Ford Milpitas plant, 11 percent of those tested were below sixth-grade level, and another 16 percent below eighth-grade level.[48] Some of these test scores indicate rustiness; some people can gain considerably in tested ability in relatively brief brush-up courses. For others, the scores reflect a more fundamental lack of educational competencies. People who lack basic reading and mathematics skills are not just unprepared for skills training. They are often seriously handicapped in finding new jobs; even filling out application forms can be a formidable task.

The staff of many displaced worker projects recognize the needs of their clients for remedial education. A few projects, notably the Milpitas project, have provided it very effectively. Another with a strong emphasis on remedial education is the Midland, Pennsylvania project, operated jointly by LTV Steel and Local 1212 of the United Steelworkers of America. The Midland center sponsors special refresher classes, daytime and evening, open to community members as well as displaced workers and their families. Classes are held in the union hall, where all the other project activities except vocational skills courses take place. In addition to an instructor who spends full time on the adult education program, teaching classes and offering individual help when needed, the center provides a self-paced audiovisual tutorial system. This unusual program, termed a refresher program by the project staff, has evoked an exceptional response. Of 590 displaced workers and family members participating in the Midland project from October 1983 through March 1985, 88 took adult education courses. In addition, 36 members of the community took part.

Both the Midland and Milpitas projects relied strongly on group support and esprit de corps in their successful adult education courses. These, plus skilled teaching, helped to overcome the reluctance—even shame—that many adults feel about admitting the need for help in basic skills.

Not many displaced worker projects have been able to fill the need for remedial education as successfully. At Downriver, for example, staff members refer clients with low mathematics and reading scores to the adult education courses available in public school night courses. Some go, but many do not. In its early days, Downriver worked with community colleges to add 4 weeks of technical preparation, (i.e., a refresher course in mathematics and reading) for clients entering skills training. Today, like a number of other projects, Downriver relies mostly on performance-based contracts. Contractors are not required to spend time on remedial education. Most do offer a few hours of brush-up in the basics at the beginning of a technical course, but workers selected for admission to these courses have already tested at the ninth- or tenth-grade level in mathematics.

In Illinois, where most displaced worker projects are based in community colleges, vocational training courses are typically designed with 4 weeks of brush-up in technically oriented mathematics and reading at the beginning. Many project staff feel that 4 weeks is not enough, but this is all the State allows under its definition of training for JTPA purposes. Moreover, the vocational training courses are already compressed into 22 weeks; if any more time is spent on the basics, the vocational training suffers.

Directors of State Title III programs surveyed by OTA in 1984-85 added evidence that remedial education, thus far, plays a relatively small part in projects serving displaced workers. Although 28 of 47 States reported that remedial education gets some Title III funding (either as an independent course or as part of another course such as vocational training), the percentage of workers receiving this service is small, and the share of funding going into the service is still smaller.[49]

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[48] See Kulik, et al., op. cit., 1984 for the Downriver project, and Mathematica Policy Research, op. cit., for the Alameda project; for Milpitas, data provided by Milpitas Adult Education department, Milpitas Unified School District.

Relocation Assistance

Relocation has long appealed to policymakers as a way of assisting displaced workers. In fact, the option has not been used much so far in displaced worker programs. The reasons are several, but a leading one is that many workers tend to view moving away as the last resort. For middle-aged and older workers, the costs of moving can be particularly high: selling one's home at a loss in a depressed market, uprooting families and abandoning community ties, embarking on an uncertain venture in an unfamiliar town where high prices may quickly wipe out whatever assets are left after the move. Even assuming things go well in the new location, older workers have relatively few working years ahead in which to make up the losses of moving with higher earnings. In recent years, with the increase in two-income families, the loss of a spouse's job is another deterrent to relocation.

Blue-collar workers generally are more hesitant to move than managers or professional workers. Usually they do not have a job waiting at the other end, and most have little practice in finding one. Because layoffs are such a common feature of semiskilled workers' lives, they are less inclined than professionals to give up the positive values of community and roots for the uncertainties of new jobs in distant places. Another important difference is that the individual qualities of workers applying for semiskilled blue-collar jobs are not likely to be so decisive as those of people applying for technical and professional positions; this makes relocation a more chancy proposition for semiskilled workers.

Downriver, for example, encouraged relocation in its early days, but later came to regard it as a high-risk, low-payoff approach. Only 8 percent of participants in Downriver's first two phases relocated, and one-fifth of those returned. Of the six demonstration projects in 1982 and 1983, four offered relocation assistance. Only 51 workers, or 3.8 percent of placements in the four programs, moved to new areas. By far the highest proportion of workers opting for relocation—amounting to 11 percent of placements—were in Yakima and Mid-Willamette Valley, both small projects in the Pacific Northwest. Many of the projects' participants in these projects who moved went only as far as the nearest city (Salem or Portland). Most were young, or were graduates of high-technology skills training courses, or were construction workers, accustomed to moving to find new work. It should be recalled, however, that the demonstration projects took place during the recession, when workers probably had reason to doubt that they would find jobs if they moved.

Under the most favorable circumstances—that is, transferring to a new job within the same company—a substantial number of displaced blue-collar workers may elect to move. The Armour Automation Fund, in its pioneering displaced worker program in the 1960s, initially found that only 4 of 1,200 workers transferred from plants closing in Birmingham and Fort Worth to other plants in distant cities. Results were quite different, however, in the later closing of Armour's Sioux City, Iowa plant. The company offered its employees jobs at new plants only 50 to 200 miles away. Workers who transferred were able to take their seniority rights with them, and also were given the option of going back home within 6 months with no loss of severance pay (so-called flow-back rights). Under these circumstances, 234 of 1,150 displaced workers opted for the transfer and stuck with it.[50] A more recent example is that of the Brown & Williamson Tobacco Co., which set aside 350 noncraftsman and 45 craftsman jobs in its new Macon, Georgia, plant for workers laid off in Louisville and Petersburg, Virginia, in the early 1980s.[51]

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[49] Forty-nine of fifty States replied to the survey, but not all of them answered all the questions. For some questions, especially on details of the various services provided, information was scanty. More detailed discussion of the results of the survey appear in ch. 5.

[50] Shultz and Weber, op. cit.

A number of large companies, such as General Motors and Ford, help workers to relocate by offering preferential hiring, under their collective bargaining contracts with unions. This gives displaced workers first priority for jobs opening up in existing plants, but usually does not allow the workers to bring with them full seniority rights for layoffs and recalls. It does allow transfer of seniority for benefits such as pensions and SUBs. The lack of seniority in the new location is a major deterrent to many workers in weighing the costs of moving. However, flow-back rights, which preserve severance pay if the worker quits or loses the new job, may make the venture more attractive. Circumstances differ, but if employees are given some financial assistance and assurances of seniority, as many as 20 percent may accept interplant transfer offers.[52]

In situations other than transfer, it may take exceptional effort to encourage a substantial portion of displaced workers to relocate. The effort can be worthwhile when the displaced workers live in isolated, shallow labor markets, where the prospects of new job opportunities are poor even with a prosperous national economy. In some severely depressed areas, relocation may be the most promising alternative to prolonged poverty, and perhaps to welfare dependency.

The Portsmouth, Ohio, displaced worker project, which started up in 1980 after the closure of the Empire-Detroit Steel plant, was an outstanding example of effective relocation. The company, the union local (of the United Steelworkers of America), and Federal, State, and county agencies underwrote the effort. The cooperation of the State and local governments was exceptional; more often, local government leaders want to rebuild their community, not send away stable, experienced workers. Ordinarily, it is not a politically palatable choice to concede that workers will be better off in another State or community than the one that State and local government officials represent.

About 1,000 workers were still employed at the Empire-Detroit plant when it closed. They received an unusual and innovative array of relocation services, from job development out of town and out of State to modest assistance with the costs of moving. The project looked nationwide for jobs, especially in the South and West; each response got a followup request for information on stability of employment, wage rates, local acceptance of workers from out of the area, and information about the community.

A unique feature of the project was group relocation. For the primary relocation site, Longview, Texas, the project staff arranged for group interviews through the local Employment Service office, and hired a bus to take the workers to Texas. The group move that resulted had some drawbacks; if one worker became dissatisfied and went back to Ohio, others returned too. But most stayed, enjoying the advantage of comradeship and a transplanted community. By mid-1982, 2 years after the project began, about 200 workers and their families had moved from the Portsmouth area, mostly to east Texas.

Another successful experiment in the relocation of blue-collar workers was more extensive and longer lasting, but was not targeted to displaced workers.[53] For 4½ years, from 1976 to 1980, the U.S. Department of Labor sponsored the Job Search and Relocation Assistance Pilot Project, to see whether various kinds of assistance encouraged unemployed workers to make worthwhile moves for jobs in new locations. Local Employment Service offices in eight southeastern States took part in the experiment. After an initial phase in which eligibility was restricted to long-term unemployed, eligibility rules were relaxed so that the project was open to any unemployed or underemployed person registered with the ES office who could not find, or could not be expected to find, suitable employment within reasonable commuting distance from home. From beginning to end, 6,644 applicants were enrolled; 1,858 (28 percent) relocated.

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[51] U.S. Department of Labor, Labor-Management Services Administration, op. cit., pp. 37-41.

[52] Marc Bendick, "Worker Mobility," *Managing Plant Closings and Occupational Readjustment: An Employer's Guidebook*, Richard P. Swigart (ed.) (Washington, DC: National Center on Occupational Readjustment, 1984).

[53] Material on the relocation experiment is drawn mostly from John K. Herzog and Cilla J. Reesman, *Job Search and Relocation Assistance Pilot Project (JSRA)*, report prepared for the U.S. Department of Labor, Employment and Training Administration (Rockville, MD: Westat, Inc., 1981).

Remarkably, relocation rates were highest for workers usually considered least likely to migrate. Of those with less than 12 years of education, 45 percent moved, compared with 16 percent of the college-educated. Blue-collar workers such as nonfarm laborers, craft workers, and operatives had the highest relocation rates among occupational groups—38 to 44 percent, compared to 13 to 16 percent for professional, technical, and managerial workers. Although older workers relocated at lower rates than younger ones, their rates were still far higher than among workers in general. Experienced workers who relocated showed earnings gains of about $2,500 a year; their counterparts in a comparison group, who were not offered special assistance and did not relocate, suffered losses of about $1,000 a year.

Workers eligible for relocation assistance in the experiment were applicants registered with their local ES office who could not find suitable jobs within commuting distance of their homes. Different groups were offered special assistance at three different levels: 1) information about out-of-area jobs and long-distance telephone referral to prospective employers; 2) the same as Level One, plus up to $500 to cover the costs of traveling to a job interview, with no limit on the number of job search grants; and 3) the same as Level Two, plus a maximum of $2,000 cash assistance toward the costs of relocating to a new job in a new community.

Overall, benefits to participants in the pilot project—i.e., increased earnings in the first 12 months after relocation assistance, over and above what would have occurred without the assistance—were 2.3 to 3.3 times the total cost of the program. In addition, the tax payback was extremely rapid. Federal taxes paid by participants on their additional first year earnings were estimated at 66 and 83 percent of total program costs. The whole cost to the taxpayers, according to the estimate, was paid back in about 18 months—and this does not take into account savings in income transfer programs, or in unemployment compensation.

In most ES offices, Level Two was the most effective service, delivering benefits to participants that were at least 60 percent greater than the cost. But in two very high-volume low-cost offices, Level Three was the best performer, with benefits to participants of at least three times the cost of these quite generous services. Level One—information and telephone referral only—was not effective. Although these services cost the least, they did not produce many placements.

Results of this pilot project cannot be generalized in a simple way to the ES system as a whole, or to displaced worker projects. The relocation experiment operated in just one region (the Southeast), which at that time had substantial immigration and centers of economic prosperity. Eighty percent of the relocations took place within the region, which tended to limit job search and relocation costs and to reduce culture shock for participants. Still, the pilot project achieved remarkable success in encouraging relocation among groups of workers who are usually reluctant to move, and did so at costs well below benefits, both to participants and, in a remarkably short time, to the taxpayers.

One of the less satisfactory aspects of the relocation project was an attempt to use the Employment Service's monthly summary of job orders throughout the Nation to find job openings out of the area. This did not work well. The sheer bulk of listings was overwhelming, and even with a special effort to update them weekly in the Southeastern region, many of the job orders were out of date, having been filled or canceled. As authorized by JTPA, the U.S. Department of Labor has improved the system of interstate job clearances in recent years. An Interstate Job Bank, located in Albany, New York, and beginning operations in July 1984, is intended to serve workers considering relocation.[54] However, listings in the interstate bank are far from complete, being limited mostly to higher paying and hard-to-fill professional and technical jobs; nor is the system fully automated. Listings may or may not be current, and they are available only in the ES offices that pay to get them. Currently, about 47,000 job orders appear in the Interstate Job Bank per year.

Displaced worker projects may be able to improve on out-of-area job information by establishing good working relationships with ES offices elsewhere, as the Portsmouth, Ohio project did with the Longview, Texas ES office. However, with 25-percent cuts in ES staff, the likelihood of special services by a distant ES office to displaced workers out of its own area has probably declined. As for more general information about employment opportunities, some States' ES systems have good detailed data about occupations currently in demand in local labor markets, but many do not. Workers considering relocation also need up-to-date information, which displaced worker projects may be able to provide, on costs of living, housing availability, schools, amenities, and crime rates in other communities.

Financial assistance for out-of-area job search and moving costs is allowed under JTPA Title III; but relocation assistance is expensive, and it has to compete with other program activities. So far, it is playing a minor part in the mix of Title III services. In OTA's telephone survey of State managers of Title III programs, 22 provided information about relocation assistance. Thirteen reported that none of their clients received the service, and only three said that as many as 5 percent of clients received it, or that as much as 5 percent of program funds were spent on relocation assistance.

Even in the States that emphasize relocation, financial assistance is modest. In Arizona, for example, where 60 percent of Title III clients lost jobs in the deeply depressed mining industry, relocation to such thriving areas as Phoenix and Tucson is a much-favored option; 15 percent of participants are reported to receive relocation services. Program officials feel they cannot afford more than a $650-per-worker allowance for job search and relocation costs combined, even though they would like to encourage more clients to consider this alternative.

The Trade Adjustment Assistance program provides much more explicitly for relocation assistance, and sets relatively generous levels for funding it—up to $800 for out-of-area job search and another $800 maximum for moving expenses. These limits are less, however, than the Labor Department's relocation project in 1976 to 1980 allowed. In fact, assistance from public funds rarely covers the full costs of relocating. In the Portsmouth project, workers who relocated got $100 a week for up to 4 weeks, plus a modest $100 for moving expenses. By contrast, Empire-Detroit Steel paid full relocation costs for employees (mostly managerial) who were transferred to new jobs within the company; the average payment was $25,000.[55] The costs of transporting people and household goods are only a small fraction of a relocation allowance this generous. The big financial costs involved in relocating from a depressed area are low sales prices for homes owned by the workers, and high mortgage rates for a new home, compared with low rates on old mortgages. Only where employees are exceptionally valuable are companies willing to pay for all these costs of relocation.

The Federal income tax law and regulations make substantial allowance for moving costs. Even taxpayers who do not itemize their deductions, but take the standard deduction, may adjust their taxable income by subtracting costs of moving expenses when the move is related to a new job, or a change in job location. Moving expenses can include travel for househunting, temporary living expenses in the new location, and travel, meals and lodging during the move, as well as transportation costs for household and personal goods. A deduction from taxable income is of course worth more to people in higher tax brackets than to workers of low or average income. Tax credits, applied against the tax bill itself, are a greater benefit to all taxpayers, but proportionately more to people in the lower brackets.

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[54] See ch. 5 for a more complete description and evaluation of the Interstate Job Bank system and a discussion of local labor market information.

[55] This cost seems to be fairly typical of payments for employer-paid moves. For example, costs were about $25,000 per worker when the American Electric Power Co. moved 800 employees from New York to Columbus, OH, in 1983. The Employee Relocation Council of Washington, DC, estimated the cost of relocation per worker at $26,000 to $30,000 in 1983. This estimate includes very generous benefits, such as compensation for the difference between the sales price and assessed value of the worker's home or interest-free loans for a down payment and compensation for higher mortgage rates in the new home for a few years.

For many workers, the financial and social losses in moving from a depressed area may be so high that even generous relocation allowances or tax deductions are not adequate recompense. For workers to undertake relocation, they must be convinced that potential returns from the new jobs are worth more than attachment to the old communities. Most displaced workers, even in very stressed communities, probably will not make that calculation. Given effective assistance, however, as many as 20 percent have done so, and that is a considerable number.

PROPOSALS TO ASSIST INDIVIDUAL RETRAINING EFFORTS

Some of the retraining proposals introduced in recent sessions of Congress could be of significant benefit to people who, on their own initiative, seek training for career changes; the extent to which they would help displaced workers faced with the necessity of finding a new job is less clear. An example is the idea of Individual Training Accounts (ITAs) as proposed in H.R. 26, introduced by Representative Durbin with many cosponsors in the 99th Congress. S. 934, introduced in the Senate by Senator Hart and cosponsors, is similar.

The ITA plan is to establish a semivoluntary program of special accounts, to be used for training or relocation expenses for anyone who is unemployed through no fault of his own and is eligible for unemployment insurance, or whose employer certifies that he will be discharged permanently within 6 months. The accounts would be set up in State UI systems, and would be financed by matching tax-deductible contributions from workers and employers. Employees could choose whether to set up an ITA; employers who did not choose to contribute would be subject to an extra tax.[56] The ITAs would mount up to a modest limit ($4,000 in H.R. 26) but could continue to accumulate interest. Unemployed workers could tap their accounts for payment of tuition and fees to certified training facilities, after getting job counseling in local ES offices. The accounts could be also used to defray a limited portion of relocation expenses. If the workers never used their accounts for training, they could collect what they contributed on retirement, and employers could recover their shares.

Proponents argue that an ITA system would provide an assured source of funding for the retraining of displaced workers in an economy undergoing rapid structural change, and would assign the financial responsibility to the three most interested parties—government, employers, and workers. Critics contend that the system could cost the U.S. Treasury substantial amounts in lost revenue, with benefits going only to the workers actually displaced—who could amount to a much smaller number, or a different group of people, than those participating. The risk of displacement differs among firms and industries, so that a generic approach may be inappropriate.

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[56] Under H.R. 26, employers with 25 or more employees would be required to contribute to ITAs, or be subject to a continuation of a $14-per-employee surcharge on their Federal Unemployment Tax, imposed in the 1970s to replenish one of the UI system's trust funds and due to expire about 1987. States would have to make authorization of ITA a part of their UI legislation to qualify for the employer tax credit against the Federal Unemployment Tax. Loss of the credit ($378 per employee as of Jan. 1, 1985) would approximately triple the average employer's UI tax bill.

The ITA proposal is essentially a plan for financing adult education and training, on an individual basis, for involuntarily unemployed workers. It might supplement, but would not replace a comprehensive displaced worker program such as JTPA Title III, which offers an array of services for the majority who do not undertake retraining as well as for the minority who do. Nor would it take the place of the training component in Title III programs. For the workers most vulnerable to displacement—unskilled and semiskilled manufacturing workers—the most effective means for delivering training is probably a skillfully administered displaced worker project. The unmet need in training for displaced workers is not so much training expenses (tuition, fees, books and so on), which can be provided under JTPA, as income support during training. ITA proposals, as currently drawn, would not allow use of the accounts for income support.

The people most likely to take advantage of ITAs are those who already are inclined to seek adult education and training on their own intitiative—i.e., those who are more educated, more affluent, and more often in professional, managerial, and administrative jobs. (See ch. 7 for a discussion of who participates in adult education.) For higher income people, favorable tax treatment of contingency savings accounts could be a useful way to encourage retraining. Tax deductions are worth less, however, to lower income workers. In addition, many low and middle income people may feel that they cannot afford to put money aside for a contingency that may never arise. In fact, low and middle income taxpayers hold much less than their proportionate share of tax-sheltered Individual Retirement Accounts (IRAs). As table 6-7 shows, half of the 96 million people who filed Federal income tax returns for 1983 reported $15,000 or less in adjusted gross income, but they accounted for less than 8 percent of all the money put into IRAs that year. Another 20 percent of taxpayers reported adjusted gross incomes of $15,000 to $25,000; their contributions to IRAs amounted to 15 percent of the total.

Another aspect of the ITA plans as proposed is that they put most of the responsibility for choosing appropriate training on the individual worker. Neither full-time project planners nor local PICs have found it easy to determine what skills are currently in demand, much less what will be in demand a few years hence. One experienced project director, in fact, opposes training vouchers that give displaced workers too much choice. "We can't leave clients to their own devices," says this director. "People tend to pick courses in a vacuum. We make no bones about helping them make better decisions." Whether overburdened ES offices could fulfill this counseling function adequately is questionable. Currently only a very small portion (7 percent in 1981, lower thereafter) of jobseekers coming to ES offices receive job or career counseling.

Another proposal to cover training expenses (H.R. 759, Representative Stark) would allow workers eligible for unemployment insurance to take training or education allowances in lieu of UI payments. A bill to encourage readjustment of displaced workers in a different way (H.R. 1690, Representatives Wyden, Gephardt, and Schumer) proposed a demonstration program in 5 or 10 States, in which displaced workers could take a lump sum equivalent to

Table 6-7.—Individual Retirement Accounts, by Size of Adjusted Gross Income, 1983

Size of adjusted gross income	Number of returns (thousands)	Percent	Individual Retirement Accounts	
			Amount (thousands)	Percent
<$15,000	48,435	50.3	$ 2,492	7.7
$15,000 to $24,999	19,662	20.4	4,960	15.3
$25,000 to $49,999	22,939	23.8	15,692	48.5
≥ $50,000	5,257	5.5	9,205	28.5
Total	96,294	100.0	32,348	100.0

SOURCE: U.S. Treasury Department, Internal Revenue Service, "Preliminary Income and Tax Statistics for 1983 Individual Income Tax Returns," *Statistics of Income Bulletin*, winter 1984-85, p. 28.

their maximum UI benefits to go into business for themselves. The amounts involved per worker would probably be modest. The average weekly benefit for UI claimants in 1984 was $119; at that rate, a lump sum payment for 26 weeks would amount to $3,094.

H.R. 1219, introduced by Representative Johnson and 45 cosponsors in the 99th Congress, would give favorable tax treatment to training accounts for displaced workers but, unlike the ITA plan, would require no contribution from employers. Instead, it would allow displaced workers to make early withdrawals from their IRAs with no back taxes or tax penalty, if the money were used for tuition, fees, book expenses, and the like in training programs approved by the Secretary of Labor. Workers who used their IRAs for training expenses would have less from that source when they retire. There is a precedent for allowing early withdrawal from tax-deferred retirement funds for other purposes. Retirement funds set up under Section 401(k) of the tax code may be tapped for several purposes, including payment of college tuition, purchase of a home, or payment of unreimbursed medical costs.

Because it is based on the existing IRA system, the plan proposed in H.R. 1219 would not require any new system for collection of contributions, and would not remove additional revenue from Federal income taxes. Another part of H.R. 1219, however, would provide a 25-percent tax credit to employers who spend more on training employees than their 5-year historical average. This tax credit, which could reduce Federal tax revenues, is patterned after the existing research and development tax credit, and is intended to encourage employers to invest in upgrading the skills of their active workers on the job. (See ch. 2 for further discussion of the proposal.)

Under both H.R. 1219 and the ITA proposals, only workers who have lost their jobs (or received notice of layoff) would be eligible to withdraw funds from their training accounts. It may well be that these training voucher systems would serve best to encourage lifetime education and retraining, rather than as a crisis response to the needs of displaced workers. To work most effectively for the purpose of encouraging worklife transitions, tax-exempt training accounts might be open to employed as well as unemployed workers. For people who are planning ahead, foreseeing the necessity of training for a new job or career, setting up a fund to draw on later for tuition could be a major help—especially if they could use it whether or not they are employed, whichever is most feasible in their own circumstances.

Chapter 7

Adult Education and Displaced Workers

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Chapter 7

Adult Education and Displaced Workers

OVERVIEW AND FINDINGS

The United States has an extensive adult education system that can help workers make transitions to new jobs. Employed workers who are vulnerable to displacement can use this system to develop new skills for different jobs, either with their current employers or at another firm. The adult education system also can be useful to displaced workers and other unemployed people who seek retraining but are not able to participate in Title III projects or other special projects for the unemployed.

The needs of displaced workers comprise only a small part of the demand for adult education and training, and the system itself is strongly oriented toward the needs of those who are already employed.[1] This chapter focuses on basic skills education, vocational education, and other education services that are most likely to be useful to blue-collar and nonsupervisory white-collar or service industry workers—the workers who are the most vulnerable to displacement and have the greatest difficulty in finding good new jobs when they are displaced. The potential of instructional technologies (e.g., computers and interactive videodisk systems) in delivering adult education to these groups is addressed in some detail. The chapter also discusses the delivery system for adult education and training, barriers that reduce access to the system, and innovative approaches for overcoming these barriers.[2] Another OTA assessment, *Informational Technology and Its Impact on American Education*, addresses the broader role of instructional technologies in the primary and secondary school systems, and in American society in general.[3]

Principal findings of this chapter are:

Adult participation in part-time education has increased dramatically over the last three decades. According to U.S. Department of Education statistics, about 13.5 percent of the adult population were participants in 1984, compared to 7.6 percent in 1957, and 60 percent of the courses these adults took were job related. However, people who are relatively affluent, well educated and employed account for most participation in adult education; those who are unemployed, less educated, and who have lower incomes are far less likely to participate. Also, people in management, administration, technical or professional jobs are far more likely to be participants than blue-collar and nonsupervisory white-collar and service industry workers who are more vulnerable to displacement.

Although the current system best serves the needs of employed people in higher level jobs, educational services are offered in most urban and many rural communities that can help blue-collar and nonsupervisory white-collar or service industry workers obtain new skills so that they can function better in their current jobs or more easily find a new job if displaced. While some people take advantage of these opportunities on their own initiative, workers are more likely to participate if they are given encouragement by management, labor, local educational institutions, and social services agencies.

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[1] No fully satisfactory distinction can be made between job-related "adult education" and "training." For this reason, the two terms are sometimes used interchangeably. In this chapter, "adult education" generally refers to courses taken at educational institutions even when an employer pays for the course, while "training" generally refers to instructional activities at the workplace, or for courses that are called "training" by their sponsors.

[2] Because the chapter focuses on educational options for displaced workers, it does not address the undergraduate and graduate school educational system in detail, even though some displaced workers may opt to take postsecondary academic education. Other education and training issues, such as the adequacy of the primary and secondary school systems, adequacy of the college and university system in preparing students for careers, possible shortages in scientific and engineering graduates from college and universities, and continuing education in the professions also are not addressed in detail.

[3] U.S. Congress, Office of Technology Assessment, *Informational Technology and Its Impact on American Education*, OTA-CIT-187 (Washington, DC: U.S. Government Printing Office, November 1982).

Employers play a crucial role in adult education, probably contributing more than half of all job-related education and formal training to adults, either through in-house programs or arrangements with outside institutions. Adults participating in employer-provided courses tend to be well-educated, and in higher level managerial and administrative positions. While some firms conduct basic education programs to improve basic skills among their workers, and a few have programs to retrain workers who would otherwise be displaced, most do not.

Some recent settlements between labor unions and management emphasize education and training issues. However, by no means all unions have such settlements, and union members now account for less than 20 percent of the labor force. Collective bargaining aside, many unions actively pursue training and education opportunities for their members through union-run programs.

Demographic trends, particularly the aging of the labor force, will have significant implications for adult education and training in the next two decades and beyond. Because of the aging of the baby boom generation, by the year 2000 nearly half of the people in the work force will be middle-aged (35 to 54), compared to about 35 percent today. Older workers are traditionally less likely than the young to seek adult education, and are also more resistant to relocation when displaced.

Because the work force is aging and technological change will continue to change many jobs, it is probable that more older workers than in the past will need to refresh or relearn basic education skills, and upgrade or learn new job skills. To avoid a possible mismatch between future training needs and services, employers, educators, and trainers may need to give more attention to older workers and other adults who are underserved by the education and training system.

A key challenge for the adult education and training system will be to improve basic educational skills in the labor force. A large number of adults lack adequate skills in reading, writing, mathematics, and oral communication. These basic skills deficiencies, if not remedied, will continue to impede worker productivity and the competitiveness of U.S. business, as well as the ability of many people to get good jobs.

Skill deficiencies in reading, writing and arithmetic are widespread among high school graduates as well as nongraduates, and often affect job performance. In addition, many employers find inadequate oral communication skills, poor work habits, and inappropriate attitudes toward work to be important problems. Many displaced workers have deficiencies in basic skills, and require remedial education before they can enter occupational skill training.

In order to identify the true extent of education deficiencies, adult proficiency levels in basic skills must be sampled systematically and periodically. For more than a decade, estimates of functional illiteracy in the United States generally have been derived from a survey of adult performance levels conducted in 1974. This survey found that 20 percent of the adult population, and 15 percent of those who are employed, suffer from such serious deficiencies as to be "incompetent." A new national survey of literacy levels among young adults is expected to be completed in the spring of 1986. This one-time survey should provide improved understanding about the magnitude of the basic skills problem among young adults.

Instructional technology can help adults learn quickly and well, and also can help overcome barriers to particpation in education and training. Television, computer-assisted instruction (CAI), interactive videodisk systems and other educational technologies can improve access to adult education by overcoming geographic and scheduling barriers that prevent many adults from attending classes. Instructional technologies also can reduce the time needed for instruction, a crucial factor for many adults with family and job responsibilities that limit time available for education.

While few systematic studies have been done, there is evidence that well-designed CAI projects that use good courseware (educational software) can help adults learn faster and better than they typically do in conventional classes. In some controlled studies of adult basic education and technical training, CAI has been found to reduce instruction time by 25 percent or more, compared to conventional classroom instruction. Also, the adults in these CAI classes did somewhat better on tests than the adults in the control groups.

Several factors in addition to the computer have contributed to the success of CAI basic education projects. Some of these projects benefited from closer attention to project design, greater efforts to encourage participation, and more training of volunteers than is typical in most adult education classes. In CAI projects, the computer rarely stands alone. Rather, it is used in conjunction with classroom instruction, or tutorial assistance from a teacher or trained volunteer. The quality of the human contribution has a substantial effect on the outcome.

More evaluation of such projects is needed to determine how these success stories can be replicated dependably by others. So far, few adult basic education projects use CAI, and most of the controlled studies of CAI in adult education are a decade or more old. Initial information from more recent CAI projects suggests that many of these projects also have been successful; however, few formal or independent evaluations of the projects exist, and consistent, comparable measurements of learning gains are not available. Many new courseware products are being introduced, but few of these were specifically developed for adults, and some are of questionable quality. Evaluations would help new users in applying CAI effectively and in determining which courseware products work best.

Instructional technologies can make an important contribution to vocational skills training and retraining programs for adults, and to efforts by U.S. business firms to maintain and upgrade the skill level of their work forces. The potential of instructional technology to reduce training time makes them especially attractive to industry.

Applications for interactive videodisk systems seem highly promising for a wide variety of vocational skills training applications. Initial use of these systems has been in highly specialized training by the military or industry. Although few evaluations have been done outside of these specialized applications, the characteristics of this technology—its ability to engage the student, to present high-quality visual images, and to offer large flexibility in branching—are well suited for use in industrial skills training. Some vendors of industrial training products and services are beginning to offer generic skills lessons (e.g., for electronics theory and repair) on interactive videodisk systems. Interactive videodisk systems also hold distinct promise for use in adult basic education, provided more work is done to develop courseware that makes full use of the advantages presented by the medium. Courseware also needs to be developed for the mature, adult student in the civilian population.

The Federal Government can assist efforts to apply and adapt instructional technology to the needs of adults by sharing more of its own training products and experience with the private sector and educational institutions. There is growing interest in improving the diffusion of federally sponsored training and educational technologies to the private sector and educational institutions.

Many instructional technologies were initially funded by the Federal Government, especially the military, which was instrumental in the early development of computer-based instructional programs, interactive videodisk systems, and various simulators and emulators used in training programs. Most of the specialized skills training done by the military is in areas which have private sector counterparts, such as aircraft maintenance, electronics, and communications, and the military in some cases has used instructional technologies to teach these skills. The military is also a leader in developing new courseware for delivering basic skills education.

The Federal Government also is a major source of funds for adult basic education programs, picking up one-third to one-half the costs of State and local remedial education projects. Also, due to changes made in the Federal vocational education program in 1984, States must now set-aside part of their Federal vocational education grants to increase educational opportunities for adults. The Federal cost-share for such projects can range from 50 to 100 percent.

While it is not a major source of funds for most other kinds of continuing education, the Federal Government does play a large indirect role. Federal student aid programs support some adult students, private employers' expenses for work force training and education can be deducted from Federal taxes as a normal business expense in the tax code, and individuals can also write off tuition expenditures for courses that are directly related to their current jobs. In addition, under a tax provision that will not apply in the 1986 tax year unless extended by Congress, tuition and other educational assistance provided under a qualified company education program cannot be considered income to the employee for tax purposes. As an employer, the Federal Government—especially the military—also is the country's largest provider of education and training to adult workers.

CHANGING CONTEXT OF ADULT EDUCATION AND TRAINING

A strong commitment to education has existed in the United States since its founding. However, formal education has not always been viewed by employers as a key factor in hiring decisions for most jobs. In 1940, half the labor force had a ninth grade education or less. With the massive commitment to education following World War II, the average number of years spent in school among U.S. citizens rose very rapidly. Today, roughly four-fifths of those in the labor force who are 25 to 64 years old have at least a high school diploma, and nearly one-fourth have 4 years of college or more.[4] Those who did not graduate from high school are at a disadvantage in the labor market.

There also has been a large increase in adults who continue their education after high school or college. Between 1957 and 1984, the proportion of adults taking part-time education grew from 7.6 to 13.5 percent of the adult population. These part-time students cited job-related reasons for 62 percent of the courses they took in 1984.[5] Some view this growth as evidence that education is now a lifelong endeavor, helping workers adapt to changing job conditions, obtain promotions and make career changes at various stages of their working lives. Most of the adults who take advantage of education opportunities, however, are already well educated, and are in professional, technical, and managerial jobs in which the value of education is clearly recognized. (See box 7A.)

Blue-collar and nonsupervisory white-collar or service industry workers are much less likely to participate in adult education. While some of these workers do take advantage of continuing education to help them change jobs or advance within a company, education and training often has limited relevance to their current jobs. Others may have had negative experiences with education in childhood, and do not see it as relevant to their adult lives. Some of these workers do not have broad, transferable skills that would help them change jobs within a firm, or secure another job if displaced, and some have serious educational deficiencies that prevent them from developing such skills.

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[4] Burt S. Barnow, *The Education, Training and Work Experience of the Adults Labor Force From 1984 to 1995* (Washington, DC: National Commission on Employment Policy, June 1985), pp. 7-9.

[5] Preliminary, unpublished data from the May 1984 survey of participation in adult education, as provided by the Office of Educational Research and Improvement (OERI, formerly the National Center for Education Statistics), U.S. Department of Education. OERI, through the Census Bureau, surveys participants in adult education (defined as part-time students over 17 years of age enrolled in an organized course of instruction) every 3 years.

Box 7A.—Who Participates in Adult Education and Training?[6]

About 23 million people over the age of 17, or 13.5 percent of the adult population of the United States took part in adult education in 1984, studying part-time at a school, or taking another form of organized instruction (e.g., in-house training courses offered by employers).[7] Almost 20 million of these part-time students were in the labor force, and, of these, about 17 million were 25 or older. Slightly over half these adults were under the age of 35. About 55 percent of adult education participants are now women, in contrast to 15 years ago when they were outnumbered by men (48 to 52 percent).

People in adult education tend to be more educated, more affluent, and more likely to be professionals and managers than the population as a whole. About 37 percent of all professionals took adult education in 1984, as did 24 percent of all managers and administrators—a reflection of the widespread provision of management seminars and continuing education courses for people in such occupations. Technicians and people in related support services also had high participation rates (about 29 percent in 1984). Only about 10.4 percent of blue-collar workers took part in adult education.

People with the most education are far more likely to take adult education than those with fewer years of school completed. One third of those with 5 years of college or more participated in adult education in 1984, compared to only about 2 percent of those with less than a ninth grade education. Participation rates also increase with income: only 6 percent of those with family incomes of less than $7,500 per year took part in adult education, compared to about 21 percent of those with incomes over $50,000.

Employed adults are far more likely to participate than the unemployed. Among those in the labor force taking adult education in May 1984, only 4.3 percent were unemployed. This compares to a national unemployment rate of 7.1 percent among those 17 and over at the time. Participation *rates* among the unemployed have hardly changed since 1969, while employed people are now more likely to participate. Only 4.3 percent of the unemployed took part in adult education in 1984, compared to about 18 percent of employed people. Several factors contribute to this difference, including the greater level of disposable income among employed persons, and the significant role employers play in the adult education system. For example, employers often pay for job-related courses taken by their employees, and some employers have education assistance programs that help employees pay for courses that are not job related.

With some exceptions, the pattern of training and education provided by employers to their workers follows the general pattern of adult education. College graduates receive the most training, whites get more training than blacks, and more training is for business and management than for technical or trade occupations.[8] In general, better educated workers receive a disproportionately large share of the training: workers who had less than a full high school education amounted to 23 percent of the labor force in 1981, but made up only 5 percent of the trainees in that year.[9]

Employers provide most education and training to workers in high skill and high status jobs. White-collar workers receive three-quarters of the formal training, though they are only half the labor force. Professional and technical workers get a share of training twice their share of the labor force. Among blue-collar, service, and farmworkers, only one occupational group—craftworkers—got a share of training roughly proportionate to its share of the labor force in 1981. Women, who are less likely to be in professional, technical, and managerial positions than men, receive less training.[10]

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[6] Unless otherwise noted, all 1984 data in this box is preliminary, unpublished data from the May 1984 survey of participation in adult education provided by the Office of Educational Research and Improvement, formerly the National Center for Education Statistics, through the U.S. Census Bureau.

[7] Full-time students are not counted in these estimates (unless they also took a part-time course in addition to their full-time studies).

[8] Robert Zemsky, Martin Meyerson, Michael Tierney, and Ivar Berg, *Training's Benchmarks: A Statistical Sketch of Employer-Provided Training and Education 1969-1981* (report submitted to the National Institute of Education in partial fulfillment of Contract No. 400-81-0025, by the Higher Education Finance Research Institute of the University of Pennsylvania, Philadelphia, June, 1983), p. 8.

[9] Anthony Carnevale and Harold Goldstein, *Employee Training: Its Changing Role and an Analysis of New Data* (Washington, DC: American Society for Training and Development, 1983), p. 55.

[10] Ibid., p. 53.

Implications of Demographic Change for Adult Education and Training

Demographic trends will significantly affect adult education and training requirements over the next 15 years. The adult education system will need to focus more attention on people in the mid and late stages of their careers, as the baby boom generation (people born between 1946 and 1964) move into midcareers in large numbers. As is discussed in chapter 4, most of those in the baby boom have already entered the labor force.

Because baby boom workers greatly outnumber those born after them, an estimated three-fourths of the people who will comprise the labor force of the year 2000 are already in it. The labor force will also become much older than it is today. According to one analysis, middle-aged workers (those 35 to 54 years old) will make up nearly half the labor force at the turn of the century, compared to 35 percent in 1982.[11] Younger workers (those between 18 and 34) will decline from 48 percent of the labor force, to 37 percent in the year 2000. Since the number of middle-aged workers is growing as a proportion of the work force, human resource development programs will need to focus increasingly on this group.

It is also expected that women, who have traditionally received less training then men, will continue to increase their labor force participation rate, although perhaps more slowly than in the past two decades. In the year 2000, according to the above analysis, women will comprise 48 percent of the labor force, compared to 44 percent in 1982. Even though the number of workers under 35 will decline, current projections suggest that young women, many of them black, will comprise a growing proportion of this age group.

Workers who are 55 and older are not expected to increase as a proportion of the work force in the year 2000, even though people in this age group will increase in the population as a whole. However, this assumes that the current trend toward earlier retirement will continue without important changes in national retirement policies. Beyond the year 2000, older workers will make up a growing proportion of the work force, as increasing numbers of people born between 1946 and 1964 reach the age of 55.

Education and the Ability to Gain Employment

Since 1940, the median time spent in formal education among U.S. adults has increased from 8.4 to 12.6 years of school. Among young adults (those between 25 and 29) the increase in time spent in school is especially striking. In 1940, six out of ten workers in this age group had not graduated from high school, and only 6 percent had a college education or more. In 1984, all but 14 percent in this age group were high school graduates, and one in five had graduated from college.[12] Although the increase in the proportion of recent high school graduates entering college appears to be tapering off, the average number of school years of people in the labor force will continue to increase as workers born before World War II retire or die.

The increase in number of years of school has occurred in all major occupational areas, and therefore cannot be attributed simply to rapid growth in professional, technical and clerical jobs. About two-thirds of the male blue-collar workers who were employed in 1982 had completed at least 4 years of high school, and many have spent some time in college. About 56 percent of the employed male laborers were high school graduates in 1982, compared to 27 percent in 1970.

It is difficult to generalize about how much of this increase in length of time spent in formal education is actually needed in the performance of jobs. In many instances, job requirements have become more sophisticated, so that workers with more education are needed. In other cases, employers may reject job applicants who have not graduated from high school because of an assumption that high school graduates may be more productive and capable than those with fewer years of schooling. (See ch. 8 for discussion of the effects of technology on the nature of jobs.)

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[11] As discussed in Malcolm H. Morrision, "The Aging of the U.S. Population: Human Resource Implications," *Monthly Labor Review*, May 1983, pp. 13-19.

[12] All figures cited in this paragraph are taken from Dave M. O'Neil and Peter Sepielli, *Education in the United States: 1940-1983*, U.S. Department of Commerce Bureau of the Census CDS-85-1 (Washington, DC: U.S. Government Printing Office, 1985), pp. 45-49.

Using education to "screen" job applicants is largely a post World War II phenomenon, when education began to be seen as a work prerequisite not only for professional and white-collar jobs but also for many apprenticeship programs, and skilled or semiskilled factory jobs. Even for laborers, some employers hire only high school graduates among job applicants. While such policies obviously make it more difficult for the less educated to find jobs, they are not totally arbitrary. Deficiencies in basic education, poor oral communication skills, and inappropriate work attitudes are a major problem for U.S. businesses. The problem extends to many who have graduated from high school and even college, but tends to be greatest among those with fewer years of formal schooling.

Education and Income

Strong correlations have been drawn between work force participation rates, employment levels, and number of years at school. The labor force participation rate for those who have not completed junior high school is less than 40 percent, compared to 68 percent for those with a high school diploma, and 77 percent for college graduates.[13] In March 1984, according to the U.S. Department of Labor, the unemployment rate among college graduates stood at just 2.7 percent, compared with 7.2 percent for high school graduates and 11.6 percent for those with 8 years or less of schooling. The unemployment rate among high school dropouts was even higher, 12.4 percent. One reason for this strong correlation is that workers with less education are also more likely to be in occupations that are subject to high unemployment.

Many studies have found years of school to be strongly correlated with lifetime earnings and with upward occupational mobility. These correlations were especially strong during the 1950s and early 1960s. During the 1970s, most estimates of rates of return from investment in education declined from their high point in the mid-1960s.[14] The income gap between college graduates and high school graduates without college diplomas narrowed, possibly reflecting the large number of baby boom people entering the job market. This situation may have been temporary in nature: very recent data (covering the period 1979-83) show the median income of male college graduates once again increasing relative to the income of high school graduates, at least among males who were 25 to 34 years old.[15] Attempts to disaggregate estimates of economic returns from education suggest that most of the economic benfits from education are concentrated in about 40 percent of the work force; for other workers, more years of school does not provide an especially favorable rate of return strictly as an investment.

Nonetheless, for many displaced workers, education and retraining can be the most promising avenue for finding jobs that offer long-term opportunities for advancement. As is discussed in chapter 6, a sizable minority of people in well-run displaced worker projects—perhaps 20 to 35 percent—are interested in and have the background for vocational skills retraining. Many other displaced workers have basic educational deficiencies which, if not overcome, could make it more difficult for them to successfully complete a retraining course to obtain new skills, conduct a competent job search, and compete with younger, often more educated applicants for a position. Those who receive remedial education, career guidance, and vocational or occupational training should have greater likelihood of success in seeking new jobs.

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[13] As cited in Sar A. Levitan, Garth L. Mangum, and Ray Marshall, *Human Resources and Labor Markets: Employment and Training in the American Economy* (New York: Harper & Row, 1981), table 3-3, p. 30.

[14] Ibid., p. 134.

[15] O'Neil and Sepielli, op. cit., p. 40.

Estimates of Basic Skills Deficiencies Among Adults

Although the median education level in the labor force now exceeds 12 years, a large number of Americans—including many high school graduates—lack the basic skills, and general knowledge that a high school education traditionally has been supposed to confer. Some adults can only read and write at a rudimentary level; others lack skills or ability in abstract reasoning, computation, and oral communications, or do not possess interpersonal skills and positive work habits that are valued by employers. Often, people who have very serious deficiencies in basic skills are referred to as functionally illiterate.

Functional literacy is a very difficult concept to define and measure. By the strictest definition of literacy—minimal ability to read and write in any language—less than 1 percent of the U.S. population say they are illiterate when surveyed by the Census Bureau. Functional concepts of literacy or numeracy make assumptions about how proficient people need to be in reading, writing, and arithmetic to function in society (e.g., ability to read at the ninth-grade level). Competency tests attempt to identify the particular skills adults need to perform adequately in society, and then measure the ability of adults to apply these skills in everyday situations.

Most national estimates about the number of adults with basic skills deficiencies are based on a survey of 7,500 adults that was conducted in 1973 and 1974, called the adult performance level (APL) survey. APL concluded that about one-fifth of U.S. adults were "functionally incompetent" in terms of basic survival skills—such as matching personal characteristics with job requirements stated in help-wanted ads, or correctly filling out a check.[16] A higher proportion of the unemployed, 35 percent, fell into this category. Among the employed, unskilled and semiskilled workers had the lowest performance levels. The study also found that another 30 percent of Americans were only "marginally competent"—leaving the impression that only half of the adult population functioned competently.[17]

Although the APL study did not measure adult literacy levels, the 20 percent estimate has come into widespread use as a proxy for adult functional illiteracy.[18] The U.S. Department of Education, applying the APL findings to the 1982 U.S. population, estimated that 27 million adults are functionally illiterate today, and that an additional 47 million adults do not function proficiently. These two groups together—a total of 74 million people—have been referred to as the "pool of Americans in need of basic education."[19] Unfortunately, the APL survey does not help in identifying the levels of basic education that would be required to meet this need—i.e., it does not provide a basis for distinguishing among those that may simply need several brush-up courses and those who need basic education from the ground up. Moreover, virtually all aspects of the APL survey, from its guiding philosophy and methodology to its interpretation of the meaning of test results and documentation of test quality, have received unfavorable criticisms from educational researchers over the years.[20] The APL survey, now more than a decade old, continues to be used because nothing better or more recent is yet available.

A national assessment of young adult functional literacy levels (focusing only on adults in the 21- to 25-year-old age range) is being conducted for the National Assessment of Educational Progress (NAEP) by the Educational Testing Service. The purpose of the effort is to collect data about the nature of the literacy problem, and its extent among young adults. Results from this one time survey are expected in April 1986.[21]

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[16] Results of this survey are provided in: *Final Report: The Adult Performance Level Study* (Austin, TX: The University of Texas Division of Extension, August 1977).

[17] Ibid., p. 41.

[18] See Irwin Kirsch and John Guthrie, "The Concept and Measurement of Functional Literacy," *Reading Research Quarterly*, No. 4, 1977-1978, pp. 486-507, for a discussion of different concepts of functional literacy.

[19] Paul Delker, "Defining Functional Illiteracy," *Functional Literacy and the Workplace* (Washington, DC: American Council of Life Insurance, 1983), p. 33.

[20] For a review of these criticisms, see Walt Haney and Lloyd David, "The APL Study: Science, Dissemination and the Nature of Adult Education," *APL Revisited: Its Uses and Adaptation in States* (Washington, DC: U.S. Government Printing Office, 1980), pp. 53-79.

The NAEP assessment, hopefully, will appreciably improve the state of knowledge about literacy problems among young adults. About 40,000 households across the Nation are being screened to find between 3,600 and 5,000 young adults and several hundred 17 year olds who will participate in a 90-minute literacy exercise. According to the study plan, participants who are able to complete some basic reading and writings tasks (e.g., reading a simple passage aloud) will be given a more complex series of tasks to perform. People who are unable to complete the basic tasks, and a random sample from those who can, will be given an oral language interview. One purpose of the interview will be to determine how well these people use spoken English. Another purpose will be to determine how familiar these people are with different forms of written materials. For example, each person will be asked to identify such common materials as job applications, classified ads in a newspaper, and bus schedules. The participants will be asked whether they know what the article is used for, whether they actually need to use this type of information, and whether they seek assistance in using it.

The NAEP study also may help to give a clearer picture of the characteristics of young adults who have literacy problems. All of the survey participants will be questioned about their background and attitudes in order to collect data about how literacy skills vary by sex, race, family history, educational background, work demands, and so forth. This information may be useful in designing remedial education programs that take into account the very different motivations and life situations of people who lack basic skills. Several different groups of people with literacy problems have been identified in previous studies:[22]

- Motivated adults who need little prompting to take advantage of remedial education, and whose personal situation makes it possible for them to commit the time and resources to education when they have access to it. These adults constitute most of the students in adult basic education classes, and they are often very successful in achieving the goals they set for themselves.
- Motivated adults who would be likely to take advantage of adult education if they could find the time or resources to participate. Some special assistance (e.g., time off from work, child care assistance, or transportation) may be needed to make it possible for these adults to participate in education.
- Adults who value education, but are unlikely to participate in education unless major changes occur in their life situations. These adults have fundamental problems (e.g., chronic unemployment, poverty, or poor health) that consume most of their time and resources. Unless they are convinced that education can help them manage these problems, they are unlikely to participate.
- Adults who do not value education, or who find it irrelevant to their lives. These people are unlikely to participate unless a basic change occurs in their attitude about education, or unless their life circumstances change. Many adults are unwilling or unable to commit enough time to overcome deficiencies in basic education or to go on to obtain a high school equivalency degree. Some of these individuals had negative experiences in school when young, feel trapped in dead-end jobs or are unemployed, and see little benefit from remedial education. They do not feel part of the middle-class system in which education plays so strong a part.

Current federally supported remedial education programs, while offered without charge to adults at the basic education level, probably reach only highly motivated adults. Less motivated adults may need extensive encouragement to participate. Reaching these people may require significant outreach activities through community-based efforts and volunteers.

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[21] For a description of the survey, see National Assessment of Educational Progress, "NAEP Profiles of Literacy: An Assessment of Young Adults (Development Plan)," Princeton, NJ, April 1985.

[22] See, for example, Carman St. John Hunter and David Harman, *Adult Illiteracy in the United States: A Report to the Ford Foundation* (New York: McGraw-Hill, 1979).

Obviously, any long-term solution to the problem of functional illiteracy among adults will require improvements in primary and secondary school education. According to the National Commission on Excellence in Education, as many as 13 percent of all 17 year olds can be considered functionally illiterate. Among students who are members of minority groups, this figure can be as high as 40 percent. By applying the 13 percent figure to 1980 Census data, the U.S. Department of Education concluded that as many as 535,600 functionally illiterate 17 year olds are added annually to the pool of adults in need of adult basic education. While it is clearly an important subject, assessment of the primary and secondary school system is not within the scope of this report. Readers are referred to the OTA assessment, *Informational Technology and Its Impact on American Education*, as well as several other recent studies concerning adequacy of the U.S. education system, for further information.[23]

Basic Skills Deficiencies and the Workplace

Large numbers of workers have serious deficiencies in basic education that impede their ability to get a job, or once employed, to advance beyond entry-level positions, and to adapt to workplace changes. Results from the displaced worker projects discussed in chapter 6 indicate that about 20 percent of those who are participating in these projects need some remedial education. Since, in some cases, refresher or brush-up courses are all that is required, this finding only confirms the thrust of the APL survey, not its details.

The costs of inadequate primary and secondary education to business, industry, and government employers have never been quantified. However, they are undoubtably very large. Several recent surveys of employers have attempted to identify educational skills most sought by employers among recent high school graduates. In general, these surveys have concluded that employers want workers to have greater proficiency in reading, writing and computational skills, and better attitudes about the workplace than shown by many recent high school graduates. Employers differ about the degree to which specific occupational skills are desirable in the high school graduates they hire. Selected findings of some recent studies are summarized in table 7-1.

One of the few surveys to ask employers about the proficiency of their employees in basic skills was conducted in 1982 by the Center for Public Resources, a New York based organization that focuses on strategies for business involvement in addressing public problems.[24] Companies responding to the center's survey reported significant deficiencies among workers in jobs that required high school education. The most serious inadequacies—from the standpoint of the responding employers—were in mathematics, speaking, listening, and problem-solving skills. Many workers apparently found it difficult to understand verbal instructions, or to verbally express ideas and problems. Several companies linked poor arithmetic of their employees to incorrect inventorying, inaccurate production reports, and improper machine measurement and parts specifications. A large number of the companies in the survey had launched programs to update worker skills to the level of the 9th or 10th grade. However, these companies may not be representative of business as a whole, because the CPR survey only had an 8.7 percent response rate.

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[23] At least nine major reports on the primary and secondary school systems have been issued in recent years, including those by the National Commission on Excellence in Education, *A Nation at Risk*; the National Task Force on Education for Economic Growth, *Action for Excellence: A Comprehensive Plan To Improve Our Nation's Schools*, 1983; the Carnegie Foundation for the Advancement of Teaching, *High School: A Report on Secondary School in America*, 1983; and the Twentieth Century Fund Task Force on Federal Elementary and Secondary Education Policy, *Making the Grade*, 1983. Readers interested in a concise summary of these and other recent reports on the primary and secondary school system are referred to James B. Stedman, "Education in America: Reports on its Condition and Recommendations for Change," Library of Congress, Congressional Research Service, Issue Brief #IB83106, September 1984.

[24] James F. Henry and Susan Ueber Raymond, *Basic Skills in the U.S. Workforce* (New York: Center for Public Resources, 1983).

Table 7-1.—Selected Studies of Employer Perceptions of Job-Related Skills and Education[a]

Study and date	Nature of study	Whose opinion was sought?	Key findings about education	Key findings about job skills in current work force
Conference Board[b] (1977)	Questionnaire sent to 1,798 firms; 610 (22%) were returned.	Senior personnel executives of firms with 500 or more employees.	Vocational curricula ranked higher than academic curricula in secondary schools in their ability to prepare students for work.	54% found deficiencies in language skills; 24% found deficiencies in mathematical or computational skills; 18% mentioned nonskill areas (e.g., faulty attitudes towards work); 7% found deficiencies in interpersonal skills.
Center for Public Resources[c] (1982)	Questionnaire sent to 2,129 firms; 184 (8.7%) were returned. Questionnaire was also sent to unions and public schools.	More than two-thirds of those responding were personnel directors; others were training directors or line supervisors. CPR also surveyed educators and union leaders.	Respondents from business found mathematics, science, and speaking and listening skills to be the most important skills deficiencies of high school students entering the work force. Educators gave greater weight to reading and writing skill deficiencies.	Business found greatest skills deficiencies in out-of-high school employees to be mathematics, science, and speaking and listening skills; reading skills were found generally adequate for specific job, but writing skills were found to be a greater problem.
Survey of Los Angeles area employers[d] (1983)	Survey of 172 firms classified by size: 32% of sample employed fewer than 50 people; 41% employed 50-499; 27% employed 500 or more.	Interviews with chief employment officer and training officer of each firm; questions were asked about hiring requirements and specific vocational training needed for specific entry-level jobs requiring less than 4 years of college.	Study concluded that most employers were more concerned about positive work habits and attitudes than specific technical job skills among job applicants, since the firms themselves can provide training. Study suggested that high schools should reduce emphasis on skill training, and concentrate on "teaching young people to read, write, compute, and think."	For jobs entailing low or medium skills, good work habits and attitudes were found to be the most important component of job success in 75 and 64% of cases, respectively, followed by linguistic and computation skills (12 and 22%), and technical job skills (13 and 14%). For high-skill jobs (requiring more than 24 months of vocational preparation), technical skills were found to be the key factor in job success in 62% of cases.
National Academy of Science[e] (1984)	Panel report on high schools and the changing workplace.	Report reflects judgments of a panel chiefly composed of public and private sector employers about present and future job opportunities and job requirements for high school graduates.	The ability of high school graduates to learn and adapt to changes in the workplace is the major asset required by employers. Core competencies to perform entry-level jobs and continue the learning process are essential. Technical and vocational education can enhance employability but cannot substitute for core competencies; positive attitudes and sound work habits are of basic importance.	Not addressed; however, the appendix of the report contains a review of the literature that examines the relationship between job performance and tests of cognitive skills. This literature found that basic cognitive skills were a chief component of job performance, especially in more complex jobs, and many of these cognitive skills (e.g., numerical skills, reading, vocabulary, and attention to detail) were "educable."
Research and Forecasts[f] (1983)	Telephone survey, based on a random sample of 106 firms on the Fortune List of 1,300 corporations.	Top executives; half of those surveyed were chief executive officers.	41% strongly agreed and 30% somewhat agreed that a required core of basic courses in high school is needed.	

[a] This chart provides only selected findings from the referenced reports.
[b] Seymour Lusterman, Education in Industry (New York: The Conference Board, 1977).
[c] James F. Henry and Susan Ueber Raymond, Basic Skills in the U.S. Work Force: The Contrasting Perceptions of Business, Labor and Public Education (New York: Center for Public Resources, 1982).
[d] Wellford W. Wilms, "The Limited Utility of Vocational Education: California Employers' Views," Public Affairs Report, Bulletin of the Institute of Governmental Studies, University of California, Berkeley, vol. 24, No. 4, August 1983.
[e] Report of the Panel on Secondary School Education for the Changing Workplace, High Schools and the Changing Workplace: The Employer's View (Washington, DC: National Academy Press, 1984).
[f] Research and Forecasts, Inc., "Business Poll" (New York: Fall 1983).

SOURCE: Office of Technology Assessment, adapted in part from information provided by Paul E. Barton, "Employers and High Schools: The Fit Between Learning and Working," paper prepared for the Committee for Economic Development, in press, 1986.

DELIVERY SYSTEM FOR ADULT EDUCATION AND TRAINING

A large and multifaceted adult education and training system has existed in the United States for many years. In many urban and some rural areas, community colleges and other local institutions offer a range of educational services that are highly accessible to adults. Business firms are a major component of this system: by one estimate, employers, through in-house programs, provided about one-fourth of all adult education courses in 1984, and may also have financed an additional one-third of all adult education courses (e.g., those taken at schools and other institutions).[25] Informal (on-the-job) training by business is even greater, although expenditures for such activities are very difficult to estimate. A number of unions, through collective bargaining agreements and some formal programs, also are active in providing education and training to workers. A quite recent development in adult education has been the learning center, often entailing computer-assisted instruction. Some learning centers are run by for-profit corporations, while others are nonprofit private organizations that are not part of the public education system per se.

While the adult education system serves the employed far better than the unemployed, displaced workers in most urban areas can find some programs that are relevant to their needs, as is discussed in the pages below. Barriers to participation, and innovative approaches for overcoming these barriers, are both discussed later in this chapter.

Expenditures for Adult Education and Training

Estimates of total national investment (private as well as public) in adult education and training range from under $50 billion to $150 billion or more. This wide range in estimates reflects the uncertainty about how much business firms spend on formal training and education of their employees. Most national estimates of business expenditures for training extrapolate data from a few firms to the economy as a whole. Because of the different methods and assumptions used, estimates have ranged from a low of about $2 billion annually to a high of $100 billion.

Photo credit: St. Paul Technology for Literacy Center

Computer-assisted instruction for adult basic education is often provided at learning centers, not traditional classrooms. This project is located at a shopping center, and is open during the day, evenings, and Saturdays for the convenience of adults

A report by the American Society for Training and Development (ASTD), while recognizing the inherent limitations of the data, estimated that employers may have spent between $5 and $10 billion in 1981 for formal in-house training, with $7 billion being the most likely figure. The ASTD report also estimated that employers spent another $3 billion for courses taken by employees at outside institutions. Hence, ASTD concluded that total (in-house plus outside) employer training expenditures were about $10 billion in 1981. If wages and salaries of trainees were considered a training expense, the total would rise to about $21 billion.[26] Informal training of employees at their workstations, while obviously of enormous importance, is even less susceptible to accurate measurement than formal training, and few attempts have been made to estimate the costs of this training.

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[25] Information on employer provided and financed adult education provided by the Office of Educational Research and Improvement (formerly National Center for Education Statistics) from preliminary, unpublished data from the May 1984 survey of adult education.

[26] Carnevale and Goldstein, op. cit., p. 36.

The ASTD study also attempted to identify where adult education specifically related to employment takes place (over 60 percent of adult education is for job-related reasons). The report estimated that in-house training by employers accounted for about one-third of all job-related adult education. This understates the role of employers, since they pay for a high proportion of the courses taken by their employees at outside institutions. If these courses are factored in, according to the study, employers would account for about half of the financing for job-related adult education.

About 45 percent of job-related adult education takes place at educational institutions. Four-year colleges and universities account for the largest share in this subgroup (about 16 percent of the total). However, 2-year colleges, adult programs in high schools and vocational schools, and proprietary schools together account for about one-fourth of the spending. These schools are more accessible than 4-year colleges to blue-collar and nonsupervisory white-collar and service industry workers, and often specialize in occupational and vocational training.

The Federal Government is by far the largest single organization providing training in the United States, and, within the Federal Government, the Department of Defense (DOD) conducts the greatest amount of training. DOD spent about $13.4 billion on training in fiscal year 1984.[27] About $3.2 billion of the total was for specialized training to provide personnel with the skills and knowledge needed to perform specific jobs. Many of these skills are related very closely to civilian skills, such as communications, medical services, food preparation, and maintenance and repair of vehicles or electronic equipment. For this reason, DOD's training activities are relevant to the private sector. In addition, DOD plays a key role in development of new training and instructional technologies and materials. Since many of these technologies are developed to reduce training time and costs, they are of considerable interest to the private sector. (The role of DOD and other Federal agencies in research and development in instructional technology is discussed subsequently in this chapter.)

Aggregated data on training and education activities for the 5 million State government employees and 9 million local government employees is not available, but such activities are substantial. On the State level, California, Texas, and New Jersey offer extensive programs to their employees.

Major Providers of Education and Training

A complex delivery system for adult training and education has evolved over the years. Linkages among businesses, labor unions, community colleges and trade schools are common, and are probably increasing. Many community colleges have arrangements with business firms to provide courses or customized training at plant sites, and they also have responded to union requests for courses at union halls and other places convenient to workers.

Distinctions by function also have become blurred: remedial education, once almost always given through the local public school system, is now offered by private learning centers, libraries, many 2-year colleges, and some employers. Two-year colleges, in particular, offer an assortment of education and training programs, ranging from occupational training for people without high school degrees, to technician training programs, to academic programs for people preparing to transfer to a 4-year college or university. Many 4-year colleges and universities, also, now conduct outreach programs to meet the broader educational needs of adults in their community.

Some of these are long-standing programs. Since 1903, for example, the Massachusetts Institute of Technology (MIT) has operated the Lowell Institute School, which offers technician training to high school graduates. This program was originally set up to train industrial foremen to use new industrial equipment that was coming into use in turn-of-the-century America. Today, about 500 students are trained at Lowell each semester in electronics, mechanical drafting, and other technical areas. The students do not receive associate degrees, but because they are able to use MIT facilities and equipment (much of it state-of-the-art), the program is popular with many employers in the area.

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[27] U.S. Department of Defense, *Military Manpower Training Report for FY 1984*, report prepared by the Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics), March 1983, p. 2.

Employee Training by Business and Industry

Employer-provided training tends to be short-term and job-specific. Labor force mobility, or "job-hopping" is quite high in the American labor market. In 1981, the median job tenure for men was 4 years, while for women it was 2.5 years.[28] As a result, employers have a strong financial incentive not to provide training in broad, transferable skills which would be lost to the company if an employee finds other employment.

Remedial education and retraining programs are offerred by some firms. About 18 percent of firms responding to a 1985 *Training Magazine* survey of some U.S. firms with 50 or more employees said they offered a remedial education program of some sort.[29] Such programs will be addressed in greater detail later in this chapter.

About one-fifth of the firms that responded to the survey also said they made a special effort to retrain employees whose jobs were being phased out so that they could perform substantially different jobs within the company.[30] (In 1984, when the same question was asked, about 29 percent of the responding firms said they offered retraining). Production workers were most likely to receive retraining, followed by middle-managers, first-line supervisors, office/secretarial employees, and customer service employees.

Besides job-related education and training, some firms offer educational assistance programs (e.g., tuition aid for continuing education courses) for their employees. Since 1978, the Federal Government has encouraged companies to establish such education programs, through a provision in the Internal Revenue Code that allows employees to receive education assistance under a qualified company program without paying taxes on it. (As discussed in ch. 2, the provision will not apply to the 1986 tax year unless Congress acts to extend it.) A recent survey by the American Society of Training and Development reported that, among companies with educational assistance programs that responded, 5.6 percent of the eligible employees participated in educational assistance programs in 1984. The 319 companies that responded to the survey employed about 6 percent of the U.S. work force.[31] The highest level of participation, 14.4 percent of eligible employees, was reported by firms employing less than 500 employees; however, only 38 firms in this category responded to the survey. Among firms of all sizes, 72 percent of the recipients of educational assistance made less than $30,000 per year, and about 22 percent made less than $15,000 per year.

While most firms play a limited role in continuing education, many large or technologically sophisticated firms operate "learning centers" for their employees, often offering self-paced courses ranging from remedial education to continuing education in engineering. Several business firms and some industry organizations have established their own colleges and universities. A report by the Carnegie Institute for the Advancement of Teaching[32] identified some 18 corporate education institutions that grant degrees of one sort or another, of which half had received accreditation since 1977. Some of these schools (e.g., Northrop University) were originally created or sponsored by corporations, but have since become independent organizations.

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[28] Francis W. Horvath, "Job Tenure of Workers in January 1981," *Job Tenure and Occupational Change, 1981* (Washington, DC: U.S. Department of Labor, Bureau of Labor Statistics, 1983), p. 2.

[29] Dale Feuer, "Where the Dollars Go," *Training: The Magazine of Human Resources Development*, October 1985, p. 48.

[30] Ibid., p. 51.

[31] American Society for Training and Development, *Employee Educational Assistance: Who Pays, Who Benefits* (Alexandria, VA: American Society for Training and Development, May 1985).

[32] Nell Eurich, *Corporate Classrooms: The Learning Business*, A Special Report on Education in Industry and Business (Princeton, NJ. Princeton University Press, 1985).

Union Training and Education Programs

Concern about technological innovation and its impact on workers has raised the importance of training and education to labor unions. Unions are trying to make employer provided training more accessible to union members, and are seeking training, retraining, and education agreements in collective bargaining with management. Some unions also run education programs supported by membership contributions.

Several recent collective bargaining agreements, including those negotiated by the Communications Workers of America and the United Auto Workers, place substantial emphasis on broadening training and education opportunities for workers beyond job-specific training. The 1982 Ford and General Motors settlements established nickel-an-hour and dime-an-hour funds for training and retraining of autoworkers. (These funds are discussed in ch. 5.) Under the Communications Workers settlement, reached in August 1983 before the AT&T breakup, each Bell operating company and AT&T was given one year to begin offering, at company expense, training and retraining programs to employees for personal and career development, and to qualify workers who would otherwise be displaced for other jobs within the company. Most of the Bell operating companies are now offering a range of training programs, including home study and classroom training through community colleges in response to the agreement. More than 45,000 workers were participating in such courses by the end of 1985.

The Lifelong Education and Development (LEAD) program of the Service Employees International Union (SEIU) is an effort to provide workers in low-paying, entry-level positions in the health care industry with the necessary training and education to advance to better jobs. In 1980, the LEAD program, with the encouragement of the U.S. Department of Labor, was successful in establishing the Nation's first nurses apprenticeship programs. Since then, the program has worked to establish joint labor-management committees to implement career ladder programs, which identify the qualifications and training and education requirements employees need for job advancement where they work.

Delivery of Remedial Education

Since 1966, the Federal Adult Education Act has supported State and local remedial education programs. The purpose of the law, which was most recently reauthorized in 1984, is to enable all adults in the United States to acquire the basic skills needed to function in society, including "employability" skills, and to acquire the equivalent of a high school diploma if they do not already have one. The program supports adult basic education (ABE), adult secondary education (ASE), and general education development (GED) courses to prepare adults to take the high school equivalency exam. In addition, many primary and secondary schools also offer adults English-as-a-Second-Language (ESL) courses for immigrants.

Federal support for ABE programs is channelled through the States to public and private organizations (including public school districts, community colleges, and community organizations) under the Adult Education Act. About 2.3 million people enrolled in ABE, ASE, and ESL programs in the program year ending on June 30, 1981. (This was the last year for which official national data is available; State officials estimate that 2.6 million people participated in these programs in 1984.) Enrollment quadrupled between 1970 and 1980. The Federal role in supporting adult education is discussed in detail later this chapter, and in chapter 2.

Traditionally, remedial education has been offered at night in elementary and secondary schools. However, the 1978 amendments to the Adult Education Act encouraged the expansion of programs to other sites. By 1980, according to the Department of Education, over 60 percent of all classes took place in churches, community centers, and other nontraditional sites. In addition, an increase in outreach activities had occurred.[33]

Volunteer efforts are an important part of remedial education. Volunteers from two national literacy organizations (Laubach and Literacy Volunteers of America) reach about 75,000 people per year. Volunteers are also used in State-administered adult basic education programs, but data on the number of volunteers is not available.

In 1984, the Coalition for Literacy, made up of 11 literacy and adult education organizations, began the National Adult Literacy Campaign to emphasize the need for volunteer efforts in literacy programs. In conjunction with the Advertising Council, the coalition is conducting a 3-year advertising campaign to recruit volunteer tutors, bring opportunities for remedial education to the attention of functionally illiterate adults, and encourage involvement of the business community. In addition, a National Adult Literacy Project has been established by the Reagan Administration.

Recognition that functional illiteracy has widespread costs to business and society has led some employers to actively promote remedial education for their work forces; some companies provide basic skills courses for their employees. In 1983, the Business Council for Effective Literacy, founded by Harold W. McGraw, Jr., was established to encourage greater awareness of the business community about the problem of adult functional illiteracy. A later section of this chapter discusses the potential role of employers in basic skills education.

Occupational and Vocational Education

Most formal occupational and vocational training for adults is provided at publicly supported community colleges and vocational-technical area schools and institutes, and private proprietary schools. Table 7-2 shows the number of postsecondary schools offering occupational programs, while table 7-3 shows enrollments in different programs from 1975 to 1981. Most students in these programs are recent high school graduates seeking vocational skills, and adults looking to improve their existing skills, or to learn new ones. Students usually must pay for occupational training, although costs can be quite moderate. Some students are participants in federally assisted employment and training programs, and are in many cases eligible for other Federal assistance. Apprenticeship programs also meet the training needs of some workers.

The Community College System.—While perhaps better known for college-level course offerings, most community colleges offer occupational

Table 7-2.—Number of U.S. Public and Private Postsecondary Schools With Occupational Programs, by Type of School, 1982

			Private		
Type of school	Total	Public	Total	Proprietary	Nonprofit
Total	**9,208**	**1,904**	**7,304**	**6,013**	**1,291**
Vocational/technical	734	611	123	102	21
Technical institute	157	8	149	138	11
Business/commercial	1,287	5	1,282	1,235	47
Cosmetology/barber	2,177	6	2,171	2,164	7
Flight	799	7	792	788	4
Trade	747	11	736	702	34
Arts/design	248	1	247	214	33
Hospital	783	119	664	59	605
Allied health	364	87	277	227	50
Junior/community college	1,017	820	197	83	114
College/university	597	228	369	9	360
Other	298	1	297	292	5

SOURCE: U.S. Department of Education, National Center for Education Statistics, Survey of Postsecondary Schools with Occupational Programs, 1982.

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[33] U.S. Department of Education, "Justifications of Appropriation Estimates for Committees on Appropriations Fiscal Year 1985," p. 274.

Table 7-3.—Enrollment in U.S. Noncollegiate Noncorrespondence Postsecondary Schools With Occupational Programs, by Type of School, 1975-81

Type of school	1975	1977	1979	1981	Percent change 1975-81
Total	**1,399,100**	**1,495,200**	**1,623,918**	**1,687,097**	**20.6**
Vocational/technical	495,000	478,400	522,051	469,926	5.1
Technical institute	92,100	34,500	35,348	61,117	33.6
Business/office	339,200	440,500	496,599	468,374	38.1
Cosmetology/barber	113,000	132,400	148,467	171,417	28.9
Flight	72,900	63,300	67,407	63,362	13.1
Trade	158,000	159,100	169,055	228,113	44.4
Arts/design	[a]	36,800	44,095	56,613	[a]
Hospital	71,100	48,200	42,595	40,610	42.9
Allied health	[a]	55,600	60,554	60,041	[a]
Other	37,800	46,400	37,747	67,524	78.6

NOTE: Surveys of Noncollegiate Postsecondary Schools were conducted in 1976, 1978, 1980, and 1982, but in each case data are for the number of students enrolled during the 12-month period ending June 30 of the previous year.

[a] Data not available.

SOURCES: U.S. Department of Education, National Center for Education Statistics, "Enrollments and Programs in Noncollegiate Postsecondary Schools," 1976 and 1978, and unpublished data from the 1980 and 1982 surveys of Noncollegiate Postsecondary Schools.

and vocational programs that reflect local labor force needs. Occupational students at 2-year colleges now outnumber academic program students who expect to transfer to 4-year colleges or universities.[34] Community colleges are highly responsive to the learning and training needs of workers in their communities. More blue-collar and nonsupervisory white-collar or service workers take courses at 2-year colleges than other types of schools. Many community colleges also offer remedial education to students who need to improve their basic skills, and some community colleges offer highly innovative adult literary programs (for an example, see the discussion of Project ABLE in the instructional technology section of this chapter.)

Linkages (or "partnerships") between community colleges and local businesses and industries are common. The pros and cons of these cooperative projects are discussed in a subsequent section. Community colleges also have close ties with labor unions, and many offer programs off-site in workplaces, union halls, and community centers.

For-Profit Proprietary Schools.—Over 6,000 proprietary schools provide occupational and vocational training, accounting for two-thirds of all postsecondary schools that offer occupational programs. In 1980, about 4,100 proprietary schools had been accredited by an organization recognized by the U.S. Department of Education, or were eligible for certain Federal student assistance programs.[35] Proprietary schools often specialize in one trade or specialty, such as business and commercial schools, schools of cosmetology, and flight schools. Generally, these schools offer certificates for completion of occupational study programs, but not degrees. Often, a high school diploma is not required for admission.

Proprietary schools offer considerable flexibility in scheduling, which is attractive to adult workers. Courses are often short, liberal arts requirements are usually minimal, and a year-round schedule of day and evening classes is common.

Tuition at proprietary schools is often much higher than at publicly supported community colleges. Nonetheless, these schools often attract lower income students, including many who are not high school graduates. Enrollees in accredited proprietary schools are eligible for Federal Pell Grants (formerly Basic Educational Opportunity Grants) and Federally Insured Student Loans. Because there are so many proprietary schools, it is difficult to generalize about their effectiveness in preparing students for jobs.

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[34] Paul E. Barton, *Worklife Transitions: The Adult Learning Connection* (New York: McGraw-Hill, 1982), p. 18.

[35] Information provided by the National Center for Education Statistics (now the Office of Educational Research and Improvement), U.S. Department of Education, 1985.

A 1984 study by the U.S. General Accounting Office found that many proprietary schools that were eligible to receive Pell Grant students had misrepresented themselves when recruiting students and had violated the rules of their accrediting associations.[36] The study also said that the industry-based accrediting associations rarely took action to ensure that their standards were met. Dropout rates from the schools eligible for Pell Grant recipients were very high. The proprietary schools dispute these findings, noting that their high dropout rates reflect the difficult backgrounds of their students, and arguing that they have improved their ethical standards. Together with educators in publicly supported schools and private industry trainers, the proprietary schools have begun to explore greater self-regulation as a means of improved quality of instruction and curriculum.

Apprenticeship Programs.—The goal of apprenticeship is to produce highly skilled workers who are well versed in the theory and practice of their trade, and are therefore adaptable to variety of work situations. In theory, workers who complete good apprenticeship programs should be more productive than those with less training. Because of their understanding of the theory of their trade, they also may be more versatile in adapting to technological changes that can make specialized skills obsolete.[37]

Apprenticeship is widely used in Western Europe, especially in West Germany, where it is an integral part of the vocational education system. Called the "dual system" because it combines on-the-job training and conventional vocational education, this apprenticeship system involves about 90 percent of West German 16 year olds who are not bound for a university. (Those who do not participate must attend vocational school until they are 18.) Students in the dual system typically spend 1 or 2 days a week at a vocational school; during the other weekdays, the students work under contract with an employer.

The practice of apprenticeship in the United States is much different. Apprenticeships here often involve formal agreements between employers and candidates for apprenticeship (often with union involvement when collective bargaining exists). Traditionally, over half of U.S. apprenticeships have been in the construction trades. Other trades with large numbers of apprentices include metalworking, service and repair trades, personal services, and graphic arts.

Although informal apprenticeship occurs, formal programs are registered by State labor departments or meet U.S. Department of Labor standards. Apprentices in these programs receive classroom instruction or another form of structured study in subjects pertinent to their trades, and are employed for 1 to 4 years under the tutelage of a masterworker before receiving certification. The Federal program, launched in 1937 under the National Apprenticeship Act (Fitzgerald Act), provides technical assistance, and support services to State agencies and local programs through the Department of Labor's Bureau of Apprenticeship and Training. Federal vocational education funds can also be used to support classroom instruction of apprentices at vocational high school or other public schools with approved vocational plans.

Apprenticeship programs at one time served mostly white males. Adoption of equality of opportunity provisos and outreach efforts to attract minorities and women to apprenticeship programs have had some success. Minority representation in registered programs grew from less than 6 percent of apprentices in 1967 to about 18 percent in fiscal year 1981. Women comprised less than 1 percent of apprentices in 1973, but 6 percent in 1981. In 1984, about 322,000 people received training under registered apprenticeship programs.

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[36] U.S. General Accounting Office, *Many Proprietary Schools Do Not Comply with the Department of Education's Pell Grant Program Requirements*, GAO/HRD-84-17 (Washington, DC: U.S. Government Printing Office, Aug. 20, 1984).

[37] Levitan, Mangum, and Marshall, op. cit., p. 186.

Adult Participation in Higher Education

As a response to displacement, higher level academic education has less relevance to most blue-collar and nonsupervisory white-collar and service industry workers than vocational and technical training. However, for some displaced workers, pursuing an academic degree can be the path to an entirely different career.

Two-year academic programs offered by community colleges are highly accessible to adults. Many courses are offered in the evenings or on weekends, a schedule most working adults find convenient, and tuition is often low. Average tuition in 1983-84 was $528 for public 2-year colleges, compared with $1,284 for public 4-year universities.[38] Also the liberal admissions policies of many 2-year colleges may attract adults who did poorly in high school.

Academic programs offered at 4-year colleges and universities are generally less accessible to displaced workers and disadvantaged adults than those at 2-year colleges. In 1978, nearly half of the courses taken by adults at 4-year colleges and universities were for academic credit. Most studied part-time or in short courses, and two-thirds were working full-time. The types of adult enrolled, half were professional and technical workers and one-quarter were managers, reflects an educational mission that is aimed at higher level academic education.[39]

Continuing education or extension programs at 4-year institutions also attract large numbers of adults. These programs generally do not provide credit toward a degree and the programs are generally supported almost entirely from student fees. Continuing education students are generally well educated and have relatively high incomes.

Over the next decade, as the size of the traditional college-age population continues to decline, more colleges and universities will be forced to attract an older clientele, or else decline in size.[40] As a result, collegiate institutions are becoming more flexible in accommodating the needs of adults.

Some modifications—such as scheduling classes in the evenings and on weekends, offering courses at regional campuses, libraries, workplaces, and union halls, providing childcare services, or using television and audio transmission to reach students—may have little effect on the academic standards of the institution. Some other devices—such as granting academic credit for studies in trade schools, on-the-job training, participation in community-based groups, volunteer work, employment experience, artistic achievement, and military service and training—may be attractive to adults who wish to complete an academic program quickly, but clearly do have the potential to lower academic standards if they are abused.

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[38] U.S. Department of Education, National Center for Education Statistics, *The Condition of Education: 1985 Edition* (Washington, DC: U.S. Government Printing Office, 1985), table 2.16, p. 118.

[39] Ivan Charner and Byrna Shore Fraser, "Access and Barriers to Adult Education and Training," contract study prepared for the Office of Technology Assessment, September 1984, p. 22.

[40] Herbert L. Smith, "Higher Education's Future," *American Demographics*, September 1983, p. 22.

INSTRUCTIONAL TECHNOLOGY IN ADULT EDUCATION AND TRAINING[41]

Most studies of instructional technologies have focused on primary, secondary and college students, or on special populations of adults (e.g., members of the military). Much less attention has been given to the use of instructional technology in helping meet the education and training needs of adult blue-collar workers and nonsupervisory white-collar workers. This section discusses the use of computers, interactive videodisk systems, and other technology-based systems in delivering vocational training, and basic skills education to adult workers.

Historically, the Federal Government has played a primary role in research and development of new instructional technologies. Many pioneering applications for instructional technologies were initially developed or supported by the Department of Defense, the National Science Foundation, and the Department of Education and its predecessor agency.

The entire field of instructional technology is changing rapidly, as new applications and markets for education and training products are developed. Advances in basic research on information technologies may greatly expand the capabilities of instructional technology over the next 15 years. For example, research on expert systems (a form of artificial intelligence) has already led to initial commercial uses in certain well-defined applications. A recent OTA report, *Information Technology R&D: Critical Trends and Issues*, discusses trends and prospects for information technology in detail.[42] Another OTA study is looking at the long-term implications of what might be possible to achieve through the use of instructional technologies after the year 2000.[43]

Delivery Systems for Instructional Technology

The use of computers, videotapes and videodisks, and other technology-based systems for delivering education and training is increasing. Instructional technologies have become widespread in training programs used by the military and large corporations. Although educational institutions have been slower to adopt instructional technologies, the number of computers in public school classrooms has grown rapidly since 1980, and several thousand instructional programs for computers are now advertised for educational applications.

Technology-based delivery systems for education and training are changing rapidly, reflecting advances in information technology. It can be expected that as new, more sophisticated technologies are marketed, instructional applications for these systems will be developed. Computer-based instruction, videotape and videodisk systems, and instructional television are briefly discussed below.

Computers.—Most current uses for the computer in learning involve computer-assisted instruction (CAI), or computer-managed instruction (CMI), or both. CAI refers to several forms of instruction that computers can deliver to students—e.g., drill-and-practice exercises for printed material previously given to the student, or new materials presented through programmed learning. Other terms (e.g., computer-enhanced learning) often refer to more advanced CAI applications, such as use of simulation or games in learning.

A major use of CMI is to keep track of the progress of individual students or groups of students. It can be used to guide the student to appropriate learning materials or instructional sequences, depending on the student's progress and objectives. CMI is valuable for collection of data about student performance. It can help improve the productivity of teachers and trainers, since it often reduces the time they must spend in routine tasks such as grading tests and keeping records. CMI can be used either independently, or in conjunction with CAI. Until recently, the computational and data storage requirements of CMI systems limited their use to large-scale learning systems. However, with the heightened capability of microcomputers, combined CMI-CAI systems can be used in networks of microcomputers.

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[41] Parts of the discussion on instructional technology in this chapter are adapted from Norman D. Kurland & Associates, *The Role of Technology in the Education, Training and Retraining of Adult Workers*, a report prepared for the Office of Technology Assessment, Oct. 5, 1984. This contract report provides a detailed analysis of instructional technologies used in adult education. Readers interested in use of instructional technologies in the educational system as a whole, including children and young adults, are referred to the OTA assessment, *Informational Technology and the American Educational System*, op. cit.

[42] OTA-CIT-268, February, 1985.

[43] These implications are being addressed in OTA's assessment of technology and American economic transition.

Computer instruction in basic skills is now more than 20 years old. During this period, several basic skills programs have been developed. PLATO, a very large computer-based educational system that was developed in the 1960s at the University of Illinois with substantial Federal support, includes both basic skills and GED preparation programs. PLATO is now marketed by Control Data Corp. The Computer Curriculum Corp. (CCC), a for-profit corporation founded in 1967 to develop marketable CAI materials for basic math and reading skills, offers turnkey systems of computer hardware, educational software, and support services for CAI in basic skills and GED preparation that have been used in several adult education projects.[44]

Interactive Videodisk Systems.—When linked to a computer, interactive videodisk or videotape systems can be very versatile. Interactive systems allow the students or trainees to map their way through the system, progressing to the next problem when they succeed in completing the previous one, or "branching" to a remedial exercise when they are unsuccessful. Until recently, most interactive video systems used videotapes, not disks. However, the advantages of disk systems (in terms of random access capabilities, information density, and durability) are increasingly recognized.

Each side of a disk can store 54,000 frames of textual or graphic information. Because the resolution is high (about 350 lines per inch) when displayed, each frame can store high-quality pictorial or graphic images. Individual frames can be recalled from any location on a disk in 2 seconds or less, and can be kept on the screen indefinitely without damage. By contrast, it can take 30 seconds or longer to recall portions of videotapes, and the tape can be damaged if frozen on the screen.

While not yet in widespread use, interactive videodisk systems can be expected to play a growing role in industrial training programs. The price of disk systems has been declining rapidly. Some commercial training vendors now market skills training lessons to industrial clients at prices roughly comparable to those for similar videotape lessons (assuming that the client already has the necessary hardware). Interactive videodisk systems do not appear to be used in adult basic education programs at this time; however, a basic skills curriculum using interactive videodisks has been developed in the Army, and is now undergoing evaluation.

Television.—Several forms of television (e.g., broadcast, cable, videotape) remain important for adult education and training. As a broadcast medium, television is able to bring instruction to large numbers of people who otherwise might be unable to attend classes at a particular location or time. While most adults prefer live instruction to television, studies conducted in the 1960s showed that students learn from television about as well as from direct instruction.

Broadcast television often requires a large number of paid subscribers, or a subsidy to cover the high costs of producing or delivering programs. Several technologies can reduce costs of delivery, so that specialized courses can be offered. Instructional Television Fixed Service (ITFS) is a low-cost broadcast system which can transmit live courses over a 20-mile reception area, using microwave transmission and dish-shaped receivers. Northeastern University is using ITFS to deliver graduate level courses to professional engineers at some Boston-area electronic and electrical companies. The service includes one-way video and two-way audio, so that the students can communicate with faculty. Television also has been successfully used in providing information and education to displaced workers. An example of such a project, Detroit's Communication/Information System for the Unemployed, is discussed later in this chapter.

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[44] Case studies describing the development and use of PLATO and the CCC systems up until 1982 can be found in the OTA assessment, *Informational Technology and Its Impact on American Education.*, op. cit., pp. 128-134.

Studies of the Effectiveness of Instructional Technologies

Several studies conducted over the last 10 to 15 years have found well-designed CAI programs to be effective in teaching basic academic skills. Most of these studies have focused on elementary and secondary school students, disadvantaged youths and young adults, or special adult populations such as members of the armed services or prisoners.[45]

The few existing studies on the effectiveness of instructional technologies in education and training of older adults also suggest positive outcomes. Nearly all these evaluations predate 1980, and therefore do not reflect the greater experience with use of computers in instruction that has been gained since then. Researchers at the University of Wisconsin's Center for Research on Learning and Teaching recently analyzed the findings of 24 evaluations that compared computer-based education (CBE) with conventional classroom training of adults. These studies—all that remained after the research team's criteria for screening were applied—generally found that CBE had positive results for adult learners.[46]

In particular, the analysis showed that the adults taking computer-based education needed three-quarters or less instructional time than those adults who received conventional instruction. The adults in CBE classes also received slightly higher scores on their final examinations than those receiving conventional instruction. Five of the twenty-three studies involved adult basic education; the remaining studies involved technical training.

While these results are promising, some caution should be exercised in generalizing about the superiority of one medium over another. One educational researcher, analyzing the research record, concluded that learning differences could not be unambiguously attributed to different media.[47] Since it is very difficult to control all the factors that could lead to differences in learning, several rival hypotheses can be devised from the same data to explain differences in performance or time-savings. For example, more attention may be given to instructional design when new technologies are introduced than when the same material is presented through conventional instruction. If the same attention were given to instructional design in conventional courses, the students receiving conventional instruction might fare just as well. However, if computers and other new media prompt greater attention to instructional design so that delivery of instruction is made more effective, this is a virtue of the new media.

It should also be kept in mind that instructional technologies are evolving very rapidly, and that the new technologies may be superior to those only a few years older. As educators have gained experience about instructional technologies, the knowledge base about how to use them also has grown. In the University of Wisconsin's review of CBE project evaluations, only a few of the studies involved recent projects. Of the 24 studies, 13 were conducted after 1975, but only 2 after 1980.

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[45] For a discussion of these results, see the OTA assessment, *Informational Technology and Its Impact on American Education*, op. cit., pp. 128-134.

[46] Chen-Lin C. Kulik, James A. Kulik, and Barbara J. Shwalb, "Effectiveness of Computer-Based Adult Education," Center for Research on Learning and Teaching at the University of Michigan, a presentation at the annual meeting of the American Educational Research Association, Chicago, March 1985. As used in this paper, computer-based education included computer-assisted instruction, computer-managed instruction, and computer-enriched instruction (CEI). Eighteen of the studies involved CAI, three involved CMI, and two involved CEI.

[47] Richard E. Clark, "Reconsidering Research on Learning From Media," *Review of Educational Research*, winter 1983, vol. 53, No. 4, pp. 445-459.

In the section that follows, more recent experience with CAI in adult basic education is addressed. A subsequent section discusses the growing use of instructional technology in industry, and the potential of these technologies in vocational skills training.

Recent Examples of CAI in Adult Basic Education

Several CAI projects for adult basic and adult secondary education have been launched since 1980. While few formal evaluations of these projects have been published so far, some of the projects appear to have been highly effective. Often, the projects have involved innovative planning and design, considerable use of teachers and trained volunteers, and sometimes, active support from community organizations and local foundations.

An example is Project ABLE (for Adult Basic Literacy Education), a program run by Central Piedmont Community College in Charlotte, North Carolina. This CAI project began in July of 1983, and more than 250 students with reading levels below eighth grade had enrolled by April of 1984. Students receive instruction at neighborhood centers, including a shopping center that is open 6 days a week, a community center, and a church.

During the first year of Project ABLE, the adult students (who averaged 36 years of age) reportedly needed only about 21 hours of instruction to gain one grade level in reading and math, a striking accomplishment compared to an average of 150 hours required for similar gains elsewhere in the State. The project provides individual tutoring by volunteers to all students with less than fourth grade skills, and tutoring is also available for students in more advanced instruction. The project combines this individual human attention with the use of PLATO and 12 other software packages for adult basic education and GED preparation.

Community leaders were extensively involved from the early stages of Project ABLE. Members of an advisory committee composed of people from the local media, the ministry, business and county government promoted the project, and helped to recruit adult students. The recruitment campaign, using public service announcements on radio and television, appearances on talk shows, and announcements at churches, was aimed at an adult audience with limited ability or inclination to read. In addition, newspaper stories, and flyers sent with food stamp mailings and water bills, publicized the program to the community at large, and helped attract volunteer tutors. On the first day the center was open, 77 people enrolled in Project ABLE; 20 more followed the next day. About 70 volunteers showed up on the first day training was offered; the project staff had expected only about 20.

Many adults in CAI basic education courses study more than their counterparts in conventional courses. In a basic education program run by the Great Neck, New York, public school system, adults participating in computer-assisted basic education averaged 196 hours of attendance. This was about 80 percent more than the average for non-CAI students, 108 hours. By the end of the course, the CAI students showed an average gain of 3.71 years in reading and 3.55 years in math—compared to the course objective of 2.5 years. (Average gain by non-CAI students is not available.) The CAI project was developed by the Computer Curriculum Corp.

A questionnaire given to participants in the Great Neck project provides additional evidence that CAI projects can motivate adults to study more. Ninety-eight percent of the adult students said that they enjoyed studying with the computer, especially mentioning the clear explanations and immediate feedback. Nearly three-fourths of the students said they would like to use the computer more often; only 5 percent said they would like to use it less often.[48]

Very good results also have been reported by nonprofit learning centers around the country that are using a Comprehensive Competency Program (CCP) that is being distributed by the Remediation and Training Institute. CCP uses a variety of previously developed materials for teaching academic and functional skills, including public and private domain printed materials, software, and audiovisual materials. While CCP does not have to be delivered on computer, most of the centers use a combination of CAI and printed materials. CCPs also have instructors available to help students.

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[48] As discussed in Norman D. Kurland & Associates, op. cit., p. 65.

During the second quarter of 1985, 1,220 people at 58 nonprofit learning centers were terminated from these programs. About 42 percent of the people were over 22 years of age. For all second-quarter terminees, the centers reported an average gain of 1.2 grades in reading skills in 50 hours of related instruction, and 1.5 grades in math in 40 hours of related instruction. If projected linearly, this would suggest gains of 2.4 years in reading and 3.7 years in math for 100 hours of instruction. However, only about 15 percent of the participants in these projects completed 100 hours of instruction. According to the institute's summary report:

> . . .the mean reading and math gain rate per 100 hours of instruction were four times higher for learners with less than 50 hours of instruction than for those with over 50 hours. Nevertheless, the "gain rate per 100 hours of related instruction" is the common metric for assessing basic skills instruction, and the reading and math gain rates achieved by CCP learners were more than double the standards for remedial education.[49]

This difficulty in expressing learning gains in quantitative terms illustrates a fundamental problem that exists in evaluating CAI projects, and in making comparisons among ABE projects in general. The ideal comparison would take into account not only differences among teachers, instructional materials, and approaches, but also differences among the students themselves. Students enter ABE classes with very different levels of academic skills. Those who are simply rusty in, say, arithmetic, may recover their knowledge very quickly, while those who never had this knowledge to begin with may learn slowly. Also, students often show plateaus in learning—i.e., rapid progress may be followed by a period of consolidation, before another period of rapid progress begins. For these reasons, the expected level of achievement or a norm for adult basic education can only be stated in very gross terms—e.g., one grade level gain for every 80 to 120 hours of instruction.[50]

Even using this broad range, the evidence strongly suggests that more rapid learning takes place in well-managed CAI systems than is likely to be achieved in most basic education classes that use only traditional methods of instruction. In addition, while not yet established, effective replication of results may be easier to accomplish using CAI than in systems that are more highly dependent on the individual teacher. A key purpose of the Remediation and Training Institute's program is to provide an academic and functional competency program that can be applied in a variety of settings. Thus the institute provides step-by-step information to the learning centers on how to organize, manage, implement, and evaluate the Comprehensive Competency Program. Although it is too soon to say for sure, the fact that so many projects report initial success with CCP suggests that the program can be effectively replicated.

Cost Factors Affecting the Adoption of Instructional Technologies

The cost of introducing new technologies has been viewed as a barrier in many education programs. Indeed, the initial costs of acquiring hardware and courseware can appear high when costs are looked at in simplistic fashion. However, well-designed CAI programs can offer a number of cost advantages that are attractive in comparison with conventional methods of adult education.

First, when well-designed courseware is used, the computer can help raise the productivity of teachers, allowing each teacher to spend more time on instruction and less time on administration, grading, and recordkeeping. Second, the costs of acquiring hardware have declined very rapidly, and many ABE projects may have access to computers in schools, libraries, training facilities, businesses, and other institutions. While good courseware is often expensive, it can be used at any location and at any time. This is particularly useful in providing basic education to adults, who may have difficulty in scheduling classes or getting to class locations. Third, since adults tend to learn more quickly in CAI projects than is typical for basic education, these projects may be able to serve more people. Most adults find savings in time needed for education very attractive.

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[49] All figures cited are from "The Comprehensive Competencies Program: A Summary," Remediation and Training Institute, Washington, DC, n.d. The quotation is from p. 15 of the same report.

[50] See, for example, Thomas G. Sticht, *Basic Skills in Defense*, report issued through the Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics), March 1982, p. viii, for discussion.

Computerized learning centers are not all that expensive to set up, judging from data compiled by the Remediation and Training Institute from 58 learning centers that used its Comprehensive Competency Program during the second quarter of 1985. The typical center had a capacity to serve about 30 people, and used about eight computers for instruction, as well as another computer for management purposes. The mean investment to establish the typical learning center was slightly under $43,000. Computers, peripherals, and instructional software accounted for about 52 percent of this investment, and another 28 percent was for printed materials, and audiovisual equipment and materials. The remaining 14 percent was for supplies, furnishings, and center restoration. Using the second quarter of 1985 as a base, the institute estimates that the annualized operating costs for the typical center would be about $80,800. Nearly three-fourths of this would be for staff salaries and fringe benefits. With amortization of the investment in the learning center over a 3-year period, the annual costs of the learning center would rise to just under $100,000 (assuming a 10 percent interest rate).

The costs of providing instruction at the centers can be measured in a number of different ways. Using full operation costs for the second quarter of 1985 (including the costs of amortizing the investment in the center), the costs per instructional hour work out to $8.45. If amortization of the investment is not included in this calculation, the operating costs per instructional hour are $6.90. However, the institute estimates that the learning centers were used at only 23 percent of their maximum capacity in the second quarter of 1985. If the centers were used at 75 percent of maximum capacity for 50 hours weekly, the costs per learner instructional hour would be $2.00, according to the institute.

Low utilization levels have been a problem in some other projects as well. One western New York public school district, for example, received a grant in 1983 from the Governor's office for a project to help steelworkers in danger of displacement obtain a high school equivalency degree—a requirement for a job interview at one steel mill that was still hiring in the area. The school district leased a CAI program and 16 computer terminals for the project. Some of the project's computer terminals were made available 24 hours a day, and one was located in a union hall for the convenience of workers. Even so, the terminals were used less than half the time.[31] One factor that probably contributed to the low utilization level was the fact that many of the laid-off workers were receiving occupational skills training during the day, and had little inclination to pursue GED courses at night. To attract greater use, the program was opened to anyone in the community who wanted to use it; however, the initial response was not great and the project was suspended at the end of December 1983.

Even at the 23-percent utilization level, the CCP learning centers apparently have been quite successful in attracting public and private funding. Based on the second quarter of 1985 data, the Remediation and Training Institute estimates that the average annualized revenue (e.g., contract services, in-kind support) of the centers would be $114,000 (including in-kind support)—well above the estimated $99,000 needed to run the typical center even when the investment for computers and other equipment has not been amortized. This surplus can be used for improvements, adjunct services and institutional support.

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[31] Norman D. Kurland & Associates, op. cit., p. 67.

Evaluation of Courseware in Adult Basic Education

Most basic skills software now available is designed for the K-12 market, not the market represented by adult basic education. However, some of these products—particularly those used for high school students—contain remedial components which in some instances may be suitable for adults.

Many States have established software evaluation projects or clearinghouses for elementary and secondary education—but this has seldom been extended to the adult basic education level. One of the few organizations that does evaluate software for adult basic education is the Region X Adult Education Software Consortium, which is comprised of ABE officials in Idaho, Oregon, Washington, and Alaska. The consortium has established a software evaluation team which specifically looks at the suitability of courseware for ABE instruction, and disseminates its findings to shool districts in the region. While useful to adult educators, the Region X consortium has limited resources.

National independent organizations that specialize in evaluation of educational software, such as the Educational Products Information Exchange Institute (EPIE) and the MICROSIFT project of the Northwest Regional Educational Laboratory, also focus largely on the K-12 system. However, some evaluated products aimed at remedial education for older adolescents (16 to 18 years of age) may be suitable for ABE instruction as well. Although most of the evaluated products are tried out to some degree in school settings, these evaluation services do not conduct formal "field testing" under controlled conditions.

Vocational education is another area where limited evaluation of courseware has been undertaken. The National Center for Research on Vocational Education, located at Ohio State University, has developed an evaluation form and guide for vocational education courseware, including secondary and postsecondary curricula. The center plans to provide some coordination of evaluations using its system.

Role of Learning Centers in Computer-Assisted Instruction

Both for-profit and nonprofit private learning centers provide a variety of educational services to adults. Many of the pioneering CAI projects for adult basic and secondary education have been undertaken by such centers. Some centers have been supported primarily by private funding, with little or no funds from Federal and State ABE programs. The large role played by the private sector indicates the active interest of community organizations, community colleges, private foundations and for-profit corporations in reducing adult functional illiteracy.

Some companies—most notably Control Data Corp.—have established for-profit learning centers in many cities across the country which will provide basic skills training either to individuals directly or to employees through their employers. CDC now operates more than 100 such centers, and in each of them adults can take basic skills training using the PLATO system. In addition, a number of companies have established learning centers for their employees.

Since 1980, many nonprofit learning centers, supported in part by local and national private foundations, have become active in computer-assisted instruction programs. In some areas, foundations and educational institutions have cooperated to establish model learning centers, designed to serve adults and also to provide community colleges, school districts, and other local organizations with the training and resources needed to establish their own CAI programs. In the Minneapolis-St. Paul area, for example, five local foundations and the St. Paul public school system have committed $1.3 million to support the Technology for Literacy Center (TLC), which opened at a St. Paul shopping center at the end of May 1985.

Patterned in part on Project A3LE, TLC is intended to serve as a model for other literacy projects in the twin cities region. It focuses on adults who have reading, writing, and math skills below the eighth grade level. The TLC staff hopes to enroll 1,300 adults in the program over a 3-year period, and to train 200 administrators, teachers, and volunteers in the use of CAI. Matching grants will be offered to existing literacy projects to stimulate the use of instructional technology. An important part of the program is to train instructors and volunteers from other programs to use CAI. The project is administered by the community education department of the St. Paul Public School System, which employs the staff.

During its first 5 months of operation, TLC served 487 people. About 56 percent of these people were not high school graduates and 68 percent tested below the eighth grade level. About 43 percent of the people were employed, and about 46 percent had sought prior help for basic skills education. Students working at the fourth to twelth grade levels use the Control Data Corp.'s PLATO basic skills program, plus a variety of offerings from other companies, in their learning program. Students who are below the fourth grade level do not use CAI, but receive one-on-one tutoring from volunteers trained in the Laubach method of literacy education. About 55 volunteers are involved in the project. The project will be subject to continuing formal evaluation over the 3-year period.

Nationally, the Remediation and Training Institute's Comprehensive Competency Program, developed with the support of the Ford Foundation, was used by 73 nonprofit organizations in 20 States by the end of June 1985. A variety of different kinds of nonprofit institutions are represented on the list, including Job Training Partnership Act Title II project agencies, postsecondary schools, community-based organizations, and alternative schools.

While CCP does not have to be delivered on computer, most centers use a combination of CAI and printed materials. For example, students at Project Options, a program at the National Learning Center in Washington, DC, spend about one-third of their classroom hours using CAI, and the rest of the time using printed or audiovisual materials. The program is individualized and self-paced. After students get initial orientation and testing to determine their performance level, a teacher selects appropriate first week lessons for them, and tells them how to locate materials in the room. From then on, the students pace themselves. They test themselves, using written answers, when they feel it is appropriate. Teachers are available for one-on-one help whenever students request it.

Project Options, set up in early 1984, has been supported by several foundations, with computer companies and book companies providing or donating some materials and technical assistance. Local government agencies, including correctional agencies and employment services agencies, engage the center by contract to provide basic skills and job skills competencies to young adults and adult students. The center offers morning, afternoon, and evening classes in 3-hour segments to minimize interference with work schedules. Orientation sessions, offered every 2 weeks to new students, encourage scheduling flexibility.

Vocational and Industrial Applications for Training Technologies

A number of different forms of instructional technology are used in vocational education and industrial training. Tutorials, ranging from slide projector presentations, to videotape, to highly interactive videodisk lessons, are among the most extensively used formats for training materials. Off-the-shelf audiovisual tutorials are available in a wide range of vocational and business management subjects.

While not yet widely used in vocational education and industrial training, interactive videodisk systems may well become a major new medium for industrial training. As a training medium, interactive videodisk systems offer several features that are well suited for industrial skills training. The high visual quality of the videodisk, random access to all frames on the disk, and features such as touch screens can be used to engage the participation and attention of the student. The ability of these systems to simulate actual equipment and situations, to keep track of problem areas for the student, and to offer individualized remedies are other attractive features.

Currently, most training applications for interactive videodisk are customized products developed for highly specialized military or industrial functions. However, generic, off-the-shelf products are beginning to appear as the costs of producing interactive videodisk decline. For example, some training firms are now offering skills training lessons for interactive videodisk to their industrial clients at prices roughly competitive with videotape. For example, the Industrial Training Corp. recently began offering an interactive videodisk training program in electrical/electronics theory and skills training. Its introductory prices for individual lessons on videodisk are actually lower than the prices it charges for its individual videotape lessons in similar subjects. This does not include the costs of presentation hardware, however.

Other applications for instructional technologies in industrial training and vocational education include simulators, emulators, and various kinds of job aids. Simulators and emulators are usually employed when it would be too expensive, dangerous, or logistically difficult to provide training on the actual equipment or system. To varying degrees, simulators duplicate the behavior of actual machines (e.g., a ship or airplane) or complex systems (e.g., a powerplant). While the extent of their use in vocational training is limited, some companies (e.g., companies offering temporary services) use simulators or emulators to train people to use a wide variety of word-processing systems that temporary typists can be expected to encounter as they move from one company to another.

Job aids are used to either supplement prior training or, in some instances, to reduce the need for training. Job aids are often used to provide instructions to workers so that they can perform tasks that require specific skills that are only infrequently required. A recent development in job aids is embedded training, in which instructions for use or repair of equipment is implanted in the equipment itself. As microchips have become cheaper, it has become possible to design machines to automatically instruct workers in how the machines should be used and repaired.

Use of instructional technology in business has spread rapidly, in part because industry places a premium on technologies that can reduce training time. Large firms account for the most widespread use of these technologies. According to a *Training* magazine survey, about 27 percent of all U.S. companies with 50 or more employees used computer-based training in 1985, compared to 22.3 percent in 1984. Among large companies (those with 10,000 employees or more) about 56 percent used computer-based training.[52]

The *Training* magazine survey also found that about 12 percent of companies with 50 or more employees used some form of computer-driven interactive videotape or videodisk players in their training efforts. Among different businesses, use of interactive video (both tapes and disks) was highest among finance, insurance and banking firms. About 6.5 percent of manufacturing firms with more than 50 employees used interactive video in some format in their training programs. Vidoetapes accounted for about four-fifths of the interactive video use, and only about 2.6 percent of all firms in the survey used interactive videodisk systems.

A recent Conference Board report, based on survey and interview information from 218 large U.S. companies, concluded that new training technologies are having important effects on corporate training programs. Benefits of the new technologies, according to the report, include more effective instruction, pacing of instruction to meet individual needs, and the ability to train individuals on an as-needed basis rather than in groups. Also, the technologies allowed for greater control over the content of the training program.[53]

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[52] Jack Gordon, "Computers in Training," *Training: The Magazine of Human Resources Development*, October 1985, p. 55. The survey found that a much larger proportion of firms—46 percent of all firms with 50 or more employees and 74 percent of firms with 10,000 or more employees—used computers in training for some purpose; however, this included data management, word processing, and graphics, as well as computer-based training.

Three out of five corporations in the survey reported significant changes in training methods and training technology in the past 5 years. In some companies, changes in training methods followed adoption of new training technologies (e.g., computers facilitate self-administered training). A rapid growth in various forms of television for training was noted. Live videotape playback, for example, is used to appraise and correct employee performance in training sessions. One company's training department operated an internal corporate television network, transmitted by satellite to 67 company locations in the United States and Canada. The network is used primarily to train sales, service, and other personnel about new products; it has also been used for engineering education.[54]

Many large corporations have their own training staff, who are versed in the use of new instructional technologies, and often prepare training materials for in-house use. In addition, a number of firms in the training industry itself specialize in providing either generic or customized instructional technologies and media to business. Some of these firms have carved out niches to provide training products and services to meet the specialized training needs of a wide variety of businesses.

Nationwide information about the size and characteristics of this component of the training industry is limited. However, according to the above cited *Training* magazine survey, U.S. firms with 50 or more employees budgeted at least $4.4 billion in fiscal year 1985 for external training expenses. While seminars and conferences were the largest single item of the training budget, these firms also earmarked about $763 million for off-the-shelf materials, $618 milllion for custom materials, and $797 million for hardware for fiscal year 1985. Outside services (a category that includes printing and production costs for training materials as well as consultant services that did not involve conferences) were budgeted at $808 million.

Federal Role in Instructional Technology Research and Development

Over the years, the Federal Government has been a major actor in developing many instructional technologies that are now used in the public education system and private sector training. Federal agencies with the most direct and important roles over the years have been the Department of Education (ED) and its predecessor agency, the Office of Education in the former Department of Health, Education, and Welfare, the National Science Foundation (NSF), and the Department of Defense (DOD). DOD expenditures on educational technology R&D were over $250 million in fiscal year 1982, compared to combined expenditures by NSF and ED on educational technology of $18 million.[55]

DOD, NSF, and ED research funds have been important in developing key educational applications for several technologies. In 1959, NSF, as well as the DOD, provided initial funding for development of the PLATO computer-based educational system at the University of Illinois. Another major computer-based education system, called TICCIT, was developed by the Mitre Corp. with NSF support. NSF also supported research at Stanford University to develop uses for the computer in basic reading and math skills. The Office of Education played an important role in early history of educational television, and supported development of a number of computer-based educational materials, among other things. The Department of Defense, owing to the large share of its budget earmarked for training of personnel in specialized skills, has made major contributions to the development and use of CAI, CMI, simulation, and training and education applications for interactive videodisk.

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[53] Seymour Lusterman, *Trends in Corporate Education and Training* (New York: The Conference Board, Inc., 1985), p. v.

[54] Ibid., pp. 13-14.

[55] The overall role of the Federal Government in educational technology research and development is addressed in detail in the OTA assessment, *Informational Technology and Its Impact on American Education*, op. cit., pp. 111-137.

Several R&D projects are now underway in DOD that concern basic skills education. Many of these research projects are part of an overall effort by DOD to develop basic education programs that are directly tied to development of the skills needed for performance of specific jobs.[56] While still under development or evaluation, these new approaches for basic education may be relevant to basic skills projects provided by employer or displaced worker projects. Because of the job-specific orientation, this approach may be less appropriate for adult basic education classes which may have broader literacy and education goals among their objectives.

The Army is developing a computer-based functional curriculum (called the Job Skills Education Program or JSEP) for soldiers who show deficiencies in knowledge or basic skills required for successful job performance.[57] A precursor to JSEP was the completion, in 1983, of a detailed Baseline Skills Analysis of the academic competencies soldiers need to perform tasks in 94 military occupational specialties (MOS). Also, diagnostic tests were developed to determine whether the individual soldier actually possessed the prerequisite level of competency required for the job.[58] From this information, a taxonomy was developed of over 200 prerequisite competencies needed at certain skills levels for the 94 MOS, as well as skills all soldiers need to know.

Under the JSEP project, computer-based modularized lessons are being developed for 180 of the prerequisite competencies. Florida State University is developing JSEP under an Army Research Institute (ARI) contract awarded in 1982.[59] The system is designed to be delivered on the Army's five mainframe PLATO systems, and on MicroTICCIT, a micro-computer-based tutoring and instructional management system marketed by the Hazeltine Corp. Three field tests of JSEP were conducted in the summer of 1985, with a fourth scheduled for 1986. Evaluation information was not available as this report was completed.

In the Navy, an Experimental Functional Skills Program (XFSP), is under development by the Navy Personnel Research and Development Center in San Diego and the Naval Postgraduate School. XFSP is intended to develop functional reading and mathematics skills that are related to a knowledge base that has a specific Navy orientation.[60] The reading component of XFSP is designed to be delivered in three forms: by a teacher using paper-and-pencil materials only, by a computer in a learning center only, or by a combination of these two in a classroom.

The computer-based instruction component of the program uses several existing public and private domain materials, including a reading skills improvement software program called LaSCAI that was developed by the Navy. Each software program has an editing feature that teachers can use to customize lessons. For example, a vocabulary drill can be tailored to include technical terms used in specific Navy jobs.

The XFSP research also has produced a new reading test battery for testing reading skills and gains in Navy-related knowledge. A small evaluation study has been conducted which compares test results from students in the XFSP with a sample of students in "general" reading programs offered by education contractors to the Navy. These students were given the new Navy-related reading tests, and also a general reading test. Not surprisingly, students in the general reading program did better on the general reading test, while students in XFSP showed little improvement in general reading but consistent gains in Navy-related reading and knowledge.

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[56] These activities reflect congressional concern, expressed by the House and Senate Appropriations Committees for fiscal year 1978, that on-duty basic skills programs offered by the services be related to job performance. While beyond the scope of this assessment, the Department of Defense is a major provider of remedial education in the United States, and basic skills programs offered by the individual services have been the subject of considerable analysis over the years. See, for example, U.S. General Accounting Office, *Report to the Secretary of the Army: Poor Design and Management Hamper Army's Basic Skills Education Program*, GAO/FPCD-83-19 (Gaithersburg, MD: U.S. General Accounting Office, June 20, 1983). For a history of remedial education programs in the services, see Thomas G. Sticht, *Basic Skills in Defense*, report issued by the Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics), March 1982.

[57] For a detailed discussion of JSEP, see Beatrice J. Farr, "The Job Skills Education Program: Computer Systems for Army Education," paper prepared for the International Conference of the Association for the Development of Computer-Based Instructional Systems, Philadelphia, PA, March 1985.

[58] This work was performed by RCA under contract with the Training and Doctrine Command (TRADOC). RCA subcontracted with the Educational Testing Service to develop the diagnostic tests.

[59] The contract is funded by the Education Directorate of the Army Deputy Chief of Staff for Personnel.

[60] For a discussion of this project, See Thomas Sticht, Louis Armijo, Natalie Koffman, and Kent Roberson, "The XFSP:Reading and Mathematics Project," paper presented at the annual meeting of the Military Testing Association, San Diego, CA, October 1985.

The Department of Defense is playing a major role in the continuing development of interactive videodisk systems, through the Army's Electronic Information Display System (EIDS). According to a recent report by the U.S. General Accounting Office, the Army plans to acquire up to 20,000 interactive videodisk systems between fiscal years 1986 and 1990 for use in training and other information display activities.[61] It has programmed $100.3 million for this acquisition over the 5-year period, as well as an additional $27 million for development, production, and distribution of videodisk courseware from fiscal year 1984 to 1990. The Army told GAO that it will reevaluate field needs for the equipment before large-scale procurement begins in 1989. The EIDS units will be built to a standard specification, so that the same interactive video courseware can be used on all of the units. The Army has also developed an authoring system for interactive videodisk, called the Production Management System (PMS). PMS automates a number of functions, and reduces the need for computer programming in developing training programs for interactive videodisks.

Other research is exploring the potential of interactive videodisks in applications that are relevent to basic skills education. The Army Research Institute has sponsored the development of the Spatial Data Management System (SDMS), an interactive videodisk learning strategies program. This package is intended to help students apply learning strategies such as mental imagery, identification of keywords and ideas, or mnemonics in studying, taking tests, solving problems, and making decisions. In a pilot test of this "learning strategies curriculum" with high school students who were poor learners in Berks County, Pennsylvania, both the students and the teachers reacted favorably to the instructional material and the mode of delivery.[62]

Another interactive videodisk project is the Space Time Army Reconnaissance System (STARS), which uses a format similar to videogames to present basic skills lessons. Under contract with the U.S. Army in Europe Continuing Education System, the University of Maryland has developed a STARS curriculum for general basic skills, and another curriculum designed to help soldiers read and understand a specialized repair manual. Evaluation of the STARS program has been conducted, but results were not available when this study was completed. Like most of the basic skills education projects conducted by the Department of Defense, STARS is oriented to the young adult, and uses images and examples that people in the military can relate to.

Several federally sponsored research projects are also underway to create instructional design tools, such as courseware authoring systems, for developing new educational products and curricula. These tools are intended to help trainers and educators who are not computer specialists to design new courseware. This research is funded in part by various military research laboratories and the National Science Foundation. Another role of the Federal Government is in developing evaluation information about its own experience with instructional technology.

The prominent role played by the Federal Government in instructional technology research, development, and application has led to concern about whether adequate procedures are in place to transfer instructional technologies developed with public support to the private sector and educational institutions. Most of this concern has been focused on research funded by the Defense Department. DOD work on instructional technology often has broad applicability to civilian training and education programs, but is not specifically developed for use by the private sector or public education institutions. By contrast, technology diffusion is a principal purpose of both NSF and ED activities in this area.

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[61] For a discussion of this and other Army procurement plans for training materials, see U.S. General Accounting Office, *Improvements Needed in the Army's Program for Developing Extension Training Materials for Use by Soldiers in Field Units,* GAO/NSIAD-85-73 (Washington, DC: U.S. General Accounting Office, 1985).

[62] Peter R. Ramsberger, Paul J. Sticha, and Anne S. Leopold, "Interactive Videodisc for Basic Skills Training Using the Spatial Data Management System," n.d.

A generic mechanism for diffusion of federally developed technologies was called for by the Stevenson-Wydler Technology Innovation Act of 1980 (Public Law 96-480). While some aspects of Public Law 96-480 have not been implemented, many Federal laboratories have established Offices of Research and Technology Applications (ORTAs), called for by the law. The purpose of the ORTAs is to facilitate information transfer about laboratory activities that have potential for use by industry. The law also established a Center for Utilization of Federal Technology in the Department of Commerce to compile and disseminate information about technologies owned or originated by the Federal Government. (This function has been assigned to the National Technical Information Service.)

Stevenson-Wydler can be used for diffusion of Federal training technology developed in Federal laboratories to State and local governments and the private sector. For example, the Department of Defense and the National Commission on Libraries and Information Science have been cooperating in a project to determine whether the LaSCAI reading improvement program developed by the Naval Personnel Research and Development Center for Navy recruits can be effective in teaching basic skills in CAI projects for adults and high school dropouts. CAI programs using LaSCAI have been launched at two libraries (one in Maryland, the other in West Virginia). The project has involved ORTAs at both U.S. Army Human Engineering Laboratory and the Naval Personnel Research and Development Center. Extension of the project to the Pittsburgh area is under consideration.[63]

Facilitating the transfer of training technologies for civilian use is one of several subjects addressed by a joint committee on education and training for national security that has been established by DOD and ED. A working group of the committee looks at civilian sector applications for training and education technologies developed by DOD. Another working group works on basic skills issues. The Department of Defense is also working with the Department of Education to provide information on JSEP.

Legislation has been introduced in the 99th Congress to establish a training technology transfer program to encourage more effective diffusion of Federal training technology to educational institutions and the private sector. The bill, S. 1662, defines training technology as computer software developed by Federal agencies to train their employees. It includes instructional software for computers, interactive videodisks, audiovisual devices, programmed learning kits, and manuals or devices that are integrally related to the software.[64] Under the legislation, all Federal agencies that use such training software are to designate a training technology transfer officer. It also would establish an overall Office of Training Technology Transfer in the National Technical Information Service of the Department of Commerce. Among other things, the office would compile and maintain an inventory of Federal training technologies. The bill also would establish a mechanism to encourage the involvement of for-profit companies in converting or modifying Federally developed training technologies so that they can be effectively used by non-profit institutions. (See ch. 2 for further discussion of this legislation.)

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[63] Information provided by the National Commission on Libraries and Information Science.

[64] Sec. 3 of S.1662, as introduced on Sept. 19, 1985.

OVERCOMING BARRIERS TO ADULT EDUCATION[65]

While the number of adults in education and training courses has increased greatly over the last 25 years, many people most in need of education and training are nonparticipants. No national surveys have been made to determine why people fail to take advantage of adult education. However, State and local studies have identified impediments to participation, some of the most common of which are listed in table 7-4.

Some barriers arise from the life experience and situation of the person: for example, many adults lack self-confidence or motivation to make education pay off in the job market. Other problems are institutional or structural: people who live in rural areas are less likely to have a full range of educational services available, and in many urban areas, some education programs may be offered in suburban locations that inner-city residents find difficult to reach. Costs of adult education, while often reasonable, may be too high for unemployed or low-income adults to pay without help. Finding relevant courses that fit in with adult schedules is also a problem for many adults.

As experience with adult learners has grown, it has become clear that changes in traditional curricula, teaching methods, and delivery approaches are often needed for a program to work well with adults. Good adult education programs must respond to real-world needs of participants for skills, jobs, or services, and must be delivered in ways that overcome barriers that prevent adults from participating. Some approaches to accomplish this are briefly discussed in the next three sections.

Table 7-4.—Barriers to Adult Participation in Education

Category and specific barriers
Situational barriers:
• Not able to afford the class
• Lack of time
• Not able to enroll because of lack of previous education
• Family responsibilities
• Job responsibilities
Social-psychological barriers:
• Lack of confidence in ability
• Feeling too old to learn
• Low self-esteem
• Tired of school
• Lack of interest
• Family or friends do not approve
Structural barriers:
• Inconvenient course scheduling
• Work schedule prevents class attendance
• Lack of transportation
• Relevant courses not offered
• Financial support restrictions
• Program is too long to complete
• Too much red tape
• Lack of information about courses
• Lack of information on support assistance
• Inadequate counseling

SOURCE: Adapted by the Office of Technology Assessment from Ivan Charner and Bryna Shore Fraser, "Access and Barriers to Adult Education and Training," contract report prepared for the Office of Technology Assessment, September 1984.

Employer Involvement in Basic Skills Education

Many employed workers with basic skills deficiencies find little reason to participate in remedial education offered by public schools.

Photo credit: UAW-Ford National Development Training Center

Adult participation in education and training can be facilitated if courses are provided at convenient times and places. This computer literacy project is being provided at a local union hall, as part of an employee development and training program.

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[65] Some of the discussion in this section is drawn from Norman D. Kurland & Associates, *The Role of Technology in the Education, Training and Retraining of Adult Workers*, a previously cited contract report prepared for OTA, and Ivan Charner and Byrna Shore Fraser, *Access and Barriers to Adult Education and Training*, another previously cited contract report prepared for OTA.

Some workers, such as high school graduates with poor basic skills, may not recognize that they have educational deficiencies that could affect their job performance. A number of corporations have become involved in basic skills education, and some offer basic skills education to their employees. These corporate programs can overcome some barriers that keep some working adults from taking adult education classes offered by public school systems. In particular, onsite programs can reduce scheduling and transportation conflicts, especially if the classes are offered at worksites during or after shifts. A few corporations overcome time barriers, which can be significant for workers with families, by offering courses on company time. Corporate and union encouragement also can help motivate some employees to take advantage of adult education opportunities. Employer involvement in adult literacy programs is being actively encouraged through the Business Council on Effective Literacy (BCEL), a publicly supported foundation set up in 1983 to increase corporate awareness of functional illiteracy problem.[66]

Employer-provided basic skills programs are probably more common than is generally recognized. However, little information is available about the number and effectiveness of such programs, or how many workers are served by them. It is difficult to judge whether more firms offer basic education to their employees than in the past, simply because few firms were surveyed until recently and no survey is complete. *Training* magazine's 1985 survey of U.S. companies with more than 50 employees found that about 19 percent of the firms that responded offered some form of remedial education; this was an apparent reduction since the 1984 survey, when one-fourth of the responding firms said they offered remedial education.

Another source of information about corporate involvement in remedial education comes from the Center for Public Resources' 1982 study of basic skills in the U.S. work force. Three-fourths of the 184 firms that responded to the CPR survey (although not a representative sample of U.S. business) offered basic skills competency programs to their employees. About 35 percent of the firms simply offered tuition assistance to employees, while the remainder either provided courses onsite or in cooperation with other companies. Survey respondents were also active in partnership programs with local high schools, aimed at improving educational skills of young people who will soon be in the labor market. Table 7-5 gives examples of such cooperative approaches.

Most of the companies responding to the CPR survey were primarily concerned about deficiencies in oral communications and computation. However, some companies have broader programs. Nabisco Brands offers employees at its Suffolk, Virginia, Planters Peanuts factory 4 hours of elementary school courses a week on company time, with additional classes available on their own time.[67] Sprague Electric Co., in Sanford, Maine, offers its employees time off to attend a nearby school to improve their reading.[68] Both Polaroid Corp. and the Cheseapeake & Potomac Telephone Co. (serving the Washington, DC region) have offered remedial education to workers for more than 10 years. Other innovative programs, such as Kimberly-Clark's Educational Opportunities Plan and Mountain Bell's onsite Career Resource Center, can be used by employees to overcome basic skills deficiencies.

While some larger companies offer onsite remedial education programs to their employees, most smaller companies cannot do so. Some public school systems now provide basic education and GED preparation at plant sites if asked by an employer, usually at cost. Montgomery County, Maryland, for example, has been offering a range of remedial education services to local firms for several years. Employers receive contractual services that are designed to meet the particular needs of the company and its employees. The county also offers courses in English as a second language at

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[66] BCEL activities include publication of reports and a quarterly newsletter for the business community on adult literacy programs, planning, and issues.

[67] "How Business Is Joining the Fight Against Functional Illiteracy," *Business Week*, Apr. 16, 1984, p. 98.

[68] *Basic Skills in the U.S. Workforce*, op. cit., p. 28.

Table 7-5.—Corporate and School System Models To Improve Basic Skills Competencies

	Subject focus								Locus				Form									
Models	Reading	Writing	Mathematics	Speaking/listening	Science	Reasoning	Other[a]	General	Internal corporate or school system	Cooperative—generic	Cooperative—unique	Third party	Employee training	Teacher training	Work study	Tutoring/in-class teaching	Development of training materials	Advisory board	Tuition Assistance	Adopt-a-school	Financial support	Counseling/communication
Banker's Life Co. "People Handle with Care"				X					X				X				X					
City National Bank								X	X				X									
McGraw Hill—"Numbers Skills			X						X								X					
Mountain Bell								X	X				X									X
Polaroid								X	X				X						X			
Kimberly-Clark								X	X				X						X			
Sprague Electric Co.	X								X				X			X						
Boston Edison							X	X		X										X		
Chesapeake & Potomac	X		X								X						X			X		
Pittsburgh Public School System								X		X					X							
Continental Illinois Bank & Trust Co.								X		X					X							
Ralston Purina Co.								X			X				X							
Reader's Digest	X									X						X						
General Foods								X		X				X								
Mutual Benefit Life								X		X				X								
Rexnord								X		X				X								
Vought Corp.			X		X						X			X								
Omaha National Bank								X			X							X				
Manufacturers Hanover								X			X							X				
General Foods "Operation Opportunity"								X			X				X						X	
Security Pacific National Bank "Project STEP"								X			X				X							
Kaiser Aluminum							X	X			X			X	X		X				X	
Genessee Intermediate School District/ Flint Chamber of Commerce							X	X			X	X			X							
Summer School District								X	X													X
Digital & Intel w/ Paradise Valley USD					X						X						X	X				
Lawrence School Department								X			X											X
Harrisburg School System								X			X							X				
Xerox Corp.					X						X				X							
Eastman Kodak			X		X						X			X	X	X						X
Erie Opportunities Industrialization Center	X	X	X	X	X							X				X		X				X
Merit Employers Clerical Enrichment Program								X				X				X						
National Association for Drug Abuse								X				X				X						X
Trilateral Council for Quality Education								X				X								X		
New Horizons							X	X				X				X						
Worcester Area Career Consortia						X						X					X					
Control Data	X	X	X						X				X			X						
Washington, DC School System	X		X	X			X				X				X		X				X	
Seattle Public Schools								X			X				X		X					X

[a] Including work behavior skills.

SOURCE: James F. Henry and Susan Ueber Raymond, *Basic Skills in the U.S. Work Force* (New York: Center for Public Resources, 1983), p. 29.

plant sites, a service that is well-received by local employers because of the large number of recent immigrants to the area.

Affiliations between local ABE projects and businesses and unions to provide basic skills instruction to workers are fairly common. According to a recent survey of State adult education directors, about 4,000 arrangements of this sort exist among the 31 States that have formal programs to involve companies and unions in ABE projects. Most of these projects involve small or medium-size corporations. Federal Adult Education Act funds, apparently, provided the greatest amount of money for these services, followed in order by business and industry funding, other State and local funds, JTPA, and other sources.[69]

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[69] Jorie Lester Mark and Garrett Murphy, "The Basic Skills-Business/Union Connection," American Association for Adult and Continuing Education, Washington, DC, October 1985.

Some private community-based foundations are also active in promoting basic education at the work site. In the Twin Cities, Literacy '85, a project of the St. Paul Foundation, will assess basic skills of workers, and develop special curricula for employers under contract.

Many workers faced with imminent layoffs or displacement can also benefit from remedial education course offerings, provided sufficient time is available to institute a program. Often, such programs depend on cooperative efforts on the part of management, unions, and educational institutions.

A successful program of this sort was run cooperatively by the Ford Motor Co. and the United Autoworkers prior to the planned shutdown of Ford's Escort assembly plant in Milpitas, California, in the spring of 1983. (This program is described in ch. 6.) During the 6-month period prior to the shutdown, the company and union undertook an extensive education and retraining program. Initial testing of over 1,600 workers showed that 11 percent scored below the sixth grade level, and another 16 percent were below the eighth grade level.[70]

As a result, the union-management team realized that remedial education would be extremely important to the success of their planned occupational retraining programs. The team called in the Milpitas Unified School District, which offered the workers courses at the plant site, after hours in the 5 months before the plant actually closed in May 1983, and during the day through most of the following year. Intensive courses in basic education, algebra and pre-algebra, GED preparation, and English as a second language were offered each time, depending on the workers' needs and enrollment levels. The courses were repeated six times over the entire course of the project, giving the displaced workers several opportunities to participate.

Because of the flexible scheduling, the use of the plant site both before and after the shutdown, and the union's active encouragement, response to the course offerings was very high. By May 1984, a year after the plant had closed, over one-third of the laid-off workers (770) had taken one or more classes. Of these, 341 entered occupational training programs and 205 were placed in jobs, for a total of 546 successful completions.[71] As the result of these courses, 175 displaced workers passed the GED examination.[72]

Designing Programs To Meet Adult Needs

Adults who do not think of education as a continuing activity in their lives may not turn to it even when education could help them make occupational adjustments to threatening changes in the local economy. Programs to attract these adults, therefore, are more likely to succeed if they are designed to anticipate the special problems and needs of the group they are intended to serve. A successful remedial education program for laid-off auto workers, such as the Milpitas project described above, may have quite different characteristics than projects that are successful among rural people or economically disadvantaged adults in the inner city. Three projects that have been specially designed to meet the needs of specific groups of adults are discussed briefly below.

Adults who live in rural areas often have difficulty in obtaining educational services that meet their specific needs. Some rural adults who are functionally illiterate high school graduates, for example, may not be eligible for some local GED programs and may live too far away to take advantage of the voluntary literacy programs that can be found in many urban areas. A program offered by the Center for Adult Education of the West Virginia Institute of Technology is aimed at serving this group.

Begun in the fall of 1983, the project is based on the premise that adults will be more likely to stay in remedial education if they learn to read about issues that concern them most.

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[70] Carol A. Upton, *Meeting the Educational Needs of the UAW/Ford Displaced Workers* (San Jose, CA: San Jose State University, 1984), p. 13.

[71] A few workers were enrolled in remedial education courses at that time, and many were enrolled in occupational training classes, making it impossible to determine final job placements.

[72] "Related Basic Skills Vocational Training UAW/Ford-Milpitas Adult Education Grant 200" (unpublished data from Milpitas Unified School District, dated Apr. 9, 1984).

Adults are encouraged to define their own interests, and the materials used to teach them (e.g., union contracts, welfare regulations, or newsletters) reflect their life experience. Courses are sponsored by unions, community groups, and prisons, and these organizations provide the location for classes. The program uses adult adjuncts (former project participants or staff from unions, prisons, and community groups) to help in the teaching, and participants are paired to reinforce learning. This informal support network, along with using reading materials that participants are comfortable with, helps overcome deficiencies in self-confidence.[73]

Although a promising approach, the project is only reaching a very small portion of the State's adults with literacy problems. About 250 adults participated in the program during its first year, and another 175 people in the second year. Most were unemployed mine workers or textile workers. A variety of different measurements of the effectiveness of the approach have been made by the project staff. Participants given standardized tests frequently used in adult education classes did very well in language skills. The program was funded by the U.S. Department of Education's Fund for the Improvement of Postsecondary Education through a 2-year $180,000 grant.[74]

In another part of rural America, a quite different kind of literacy problem—the need for computer literacy—is being addressed by an Idaho project for rural adults. Acronymed READI, the project arose from a recognition that an increasing number of rural jobs in the State required workers to use computers, but training opportunities in rural areas were very limited. Among other developments, computerized lumber mills were being built in the State, and many farmers felt a need to learn how to use computers in bookkeeping and farm management. Computers are also increasingly used by the rural banking industry, local government, and county extension offices.

Begun in the fall of 1983, the program is administered by the University of Idaho's cooperative extension department. Two major goals were identified: developing a curriculum to teach rural adults how to use computers (programming computers is not part of the objective), and developing an appropriate delivery system for rural communities. Access to computers has not been a problem, since computers in county extension offices and local high schools, as well as the university's extension system computer are available to participants.

The project relies heavily on local advisory committees, who are actively involved in the actual delivery of the program. Peer teachers (local owners of small businesses, farmers, and homemakers) are selected by the local advisory committees and trained by project staff to recruit students and teach the courses under the overall supervision of the project staff. This approach is intended to encourage participants to exchange ideas and feelings, and increase their self-confidence. The courses are provided free of charge to participants, and are held two evenings a week for a 4-week period. Job referral services are also made available to participants.

From the summer of 1984 through fall of 1985, about 500 people took the course. About one-third of these people were self employed people who use computers in their businesses. Another third of the students were taking courses to get jobs in such fields as bookkeeping, word processing, or office work. The project is expected to continue through the fall of 1986. It is funded by a $268,000 3-year grant from the Fund for the Improvement of Postsecondary Education, and about $150,000 in matching funds. This includes course development costs, as well as peer teacher training, outreach, and delivery.

Urban areas generally have a far broader range of educational services for adults than is typically present in rural America. However, cities that are confronted with widespread layoffs or unemployment may have an immediate need to provide job counseling, education and retraining, and other services to the unemployed that exceed local capabilities.

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[73] Charner and Fraser, op. cit., pp. 85-86.

[74] Information provided by the staff of the Center for Adult Education of the West Virginia Institute of Technology.

In Detroit, where heavy layoffs in the auto industry in the early 1980s created massive displacement, a project called the Communication/Information System for the Unemployed (CISU) has tapped the potential of television to bring education and information services to large numbers of displaced workers. CISU is sponsored by Wayne State University and a number of other schools that formed the Southeastern Michigan Educational Television Consortium in the late 1970s, WTVS (the Detroit public television station), the United Auto Workers, the Michigan Employment Security Commission, and a number of other organizations.[75]

When the layoffs hit Detroit in the early 1980s, the consortium, in coalition with UAW, the State employment security commission and WTVS, were able to use television to provide the unemployed with information on the local job market, job-hunting techniques, and occupational training. In 1982, the coalition set up CISU to provide information and education services on a continuing basis, and in 1983, CISU received a JTPA Title III grant from the Governor's office for job training to make displaced workers aware of locally available services.

CISU provides information to unemployed viewers about services that are available locally through use of public broadcasting, cable television, and instructional television fixed service (ITFS). A 24-hour cable television channel, called the Working Channel, offers courses and services related to job search assistance, job listings, "survival" information services, GED and ABE courses, and vocational training. ITFS is used to deliver material for broadcast to the many cable systems involved in the project.

The Working Channel can be viewed not only in homes equipped for cable, but also at over 200 sites in southeastern Michigan. To serve areas without cable, about 50 viewing sites have been equipped with dish-antennas that allow them to receive direct transmission of programs through ITFS (this low-powered, short-distance transmission system was discussed in the instructional technology section earlier in this chapter). Another 150 viewing sites have been set up in areas served by cable, as well. Sites include union halls, churches, public service agencies, libraries, and community colleges, among others. Unemployed people also have the opportunity to come to these centers to participate in working circles, groups of 5 to 15 people that work together to address common problems. Videoconferencing is used so that different working circles can exchange information and perspectives.

Unemployed workers in Detroit also can benefit from Wayne State University's "weekend college," a program begun in 1973 to reach working adults through televised courses, complemented by classroom sessions on the weekends. In 1975, Michigan's employment security commission held that unemployed workers could receive unemployment insurance benefits while attending the weekend college. An effort is being made to encourage unemployed workers to use Pell grants and tuition grants to enter the degree program.

Although it would be a mistake to generalize too much from these few examples, it is clear that education programs that are aimed at a specific part of the adult population—such as unemployed workers or educationally disadvantaged adults—work best when they are designed with the specific needs of the target population in mind. Programs that are effective in responding to the educational objectives of mature adult workers often require modifications in traditional curricula and teaching methods, as well as innovative approaches in the delivery of education. Often, these programs will involve linkages between educational institutions and business, unions, and community organizations.

Targeting Occupational Training to Job Needs

Communities or regions that are responsive to changing labor market needs are often able to attract new industry, even if they have lost some of their old employment base. Local vocational education institutions can be an important factor in attracting new industry to an area, as a 1984 study of Lowell, Massachusetts, suggests.[76] The area has experienced a great deal of structural change since 1960, with large job losses in textiles and apparel and a major influx of jobs in such industries as computers, electronics, transportation equipment, and instrument manufacturing. Over the same period, the occupational training system expanded rapidly and changed its curriculum to meet the changing needs. Between 1970 and 1982, over 85 percent of the graduates of public and private vocational schools received skill training that was "on target" or "reasonably aligned" with occupational employment changes. Courses in skills required by the rapidly-expanding "high-tech" sector grew twice as fast as other training programs.[77]

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[75] This discussion of CISU is based on Norman D. Kurland & Associates, op. cit., p. 7, and additional information provided by CISU staff.

Firms generally consider the availability of a skilled work force to be an important factor in making location decisions. A recent OTA report found that about half of all State efforts to attract high-technology development included education and training programs.[78] Strong vocational education programs alone cannot create a healthy economy. However, a recent report by a committee of the National Research Council found that firms may well be attracted to areas that have strong vocational programs that meet the particular firms needs.[79]

A number of steps can be taken to target occupational training more closely to real-world job needs. Information about the training needed to develop skills for specific jobs can be very important. Sometimes, careful study will reveal mismatches in the requirements of vocational skills training courses and the kinds of skills that are really needed on a job. For example, an extensive study of job requirements in Canada found that, while communications, reasoning skills, and interpersonal skills were important to a wide variety of jobs, vocational skills training courses included requirements far beyond these generic skills, especially in mathematics and science. As a result of the study, the Ontario community colleges greatly reduced the science component in several skills training courses. In the United States, the Department of Defense, through such efforts as the Army's Baseline Skills Research Project (discussed earlier in this chapter), is developing a great deal of information about the basic education and training requirements needed to perform specific jobs in the military. Since many military jobs have civilian counterparts, this information may be useful to corporate trainers and vocational education teachers outside of DOD.

Another approach to closer targeting of vocational courses to real-world training needs is collaboration between institutions that provide vocational education and local business. Since passage of the Vocational Education Act of 1963, private sector involvement in planning of vocational education has been encouraged through various advisory councils at all levels of government. The National Research Council study referred to above found that high-quality vocational education programs typically had developed close ties with business and labor.[80] However, it also concluded that more effort is needed to extend collaborative ventures to other programs and situations.

The National Research Council study focused primarily on vocational education in the secondary schools. However, the trend towards increased partnerships between community colleges and local business also can lead to closer targeting of vocational education with the needs of the local labor market. These arrangements with business take a variety of forms, including plant-specific training provided by the college under contract with a local employer, equipment use or donation, industry assistance in developing programs, faculty assignments in industry, industry personnel provided as part of the instructional staff, sharing of facilities, and on-the-job training.

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[76] Patricia M. Flynn, *Production Life Cycles and Their Implications for Education and Training* (Waltham, MA: Bentley College, 1984).

[77] Ibid., p. V-2.

[78] U.S. Congress Office of Technology Assessment, *Technology, Innovation, and Regional Economic Development*, OTA-STI-238 (Washington, DC: U.S. Government Printing Office, 1984), p. 62.

[79] National Research Council Committee on Vocational Education and Economic Development in Depressed Areas, *Education for Tomorrow's Jobs* (Washington, DC: National Academy Press, 1983), pp. 66-67.

[80] Ibid., p. 68.

Employees in firms engaged in such partnerships often stand to benefit from the arrangement. Some employees who might not participate in a skills training course may be encouraged to do so if it is linked to their own firm. Some firms pick up the cost of courses when their employees take them, and a few even allow employees to take these courses on company time. Lack of self-confidence may also be overcome when courses are offered at the workplace and classes are made up of peers, rather than younger, full-time students.

Such cooperative arrangements benefit community colleges in several ways by broadening their ability to meet community needs, enhancing program offerings, and increasing revenues. However, concern exists that partnerships could lead some schools to lose sight of their broader educational mission, and that other important program commitments could be diminished. Areas for concern include possible loss of faculty to industry; overreliance on short-term programs to support the college; the chance that industry's specific training demands may threaten the schools' responsibility for providing programs with the same standards as its on-campus offerings; and the danger that focusing on job-specific training may limit the general employability of workers and reduce the adaptability of the work force.

FEDERAL SUPPORT FOR ADULT EDUCATION AND TRAINING

While the Federal Government contributes less than 10 percent of all funds for public education nationwide, it plays a more important role in State and local programs providing adults with basic education and vocational education. The Adult Education Act (AEA), administered by the U.S. Department of Education (ED), contributes nearly half of the funds States and localities spend for adult basic education under this program. Under the Carl D. Perkins Vocational Education Act, enacted by Congress in 1984, the States are now required to target some of the grants they receive from the Federal vocational education (Voc Ed) program (also administered by ED) to provide more vocational education opportunities to adults, with the Federal Government authorized to pick up half or, in some cases, all of the costs of such programs.

Due to changes made in 1984, the AEA and Voc Ed laws authorize States to give employers, for-profit schools, and businesses that specialize in educational services a greater role in these programs than heretofore. The 1984 amendments also call for greater coordination of these programs with JTPA (which is administered by the Department of Labor). Some funds appropriated under Title II of the Job Training Partnership Act are earmarked to State continuing education agencies, including vocational and adult education agencies.

Most other kinds of continuing education receive little direct support from the Federal Government, but indirect support is important. The tax code allows businesses to treat the costs of training work forces as a normal business expense in calculating their Federal taxes, and individual workers can write off tuition expenses for courses that are directly related to their current jobs. Also, from 1978 through 1985, employees did not have to consider tuition and other forms of educational support provided under qualified company programs as income on which they owe Federal taxes. This provision will not apply in the 1986 tax year unless extended by Congress. Some adults also receive support from Federal student aid programs.

The Adult Education Act

The Adult Education Act, first enacted in 1966 but amended most recently in 1984, is the largest Federal program supporting remedial education for adults. AEA provides grants to States for local programs of adult basic education, adult secondary education, and English as a second language. The Federal Government is authorized to provide up to 90 percent of the cost of providing these services, with the balance contributed by the State. In practice, the State cost-share varies significantly. Some States contribute the minimum, while others pick up three-quarters or more of the cost of providing these services.

About 2.3 million people took part in AEA-supported projects in the 1981 program year, the last year for which official data on participation are available. According to unofficial data provided by State administrators, about 2.6 million adults were served by AEA projects in 1984, including 1.8 million people in ABE classes, and 760,000 people in ASE courses. An estimated 281,000 people completed GED requirements in 1984. The 1984 information is not based on official U.S. Department of Education data, however. In 1981, the Administration placed restrictions on the kinds of data that the States were required to report under AEA. As a result, much of the State and local information for program years 1982 through 1985 is based on data provided unofficially by the States. In reauthorizing the program in 1984, Congress authorized the Department of Education to obtain additional program data from the States, so that more detailed official reporting on AEA can be expected in the 1986 program year. Table 7-6 shows selected characteristics of participants in the AEA program.

Federal funding for AEA has fluctuated over the last 5 years; in fiscal year 1981, $100 million was appropriated for the program. In fiscal year 1982, funding for AEA was reduced to $86.4 million. In fiscal years 1983 and 1984, funding was increased to $95 million and $100 million respectively.[81] The Adult Education Act Amendments of 1984 (Title I of Public Law 98-511) authorized the appropriation of $140 million in adult education funds for fiscal year 1985, and such sums as may be necessary for fiscal years 1986 through 1988. Congress appropriated $102 million for the program in fiscal year 1985 and a like amount for fiscal year 1986. The adult education program is a forward-funded program, so that funds actually appro-

Table 7-6.—Demographic Characteristics of Participants in Adult Education Projects, by Program Type

	Participation, by program type (percent)			
Characteristic	Adult basic education	Adult secondary education	English as a second language	All programs
Sex:				
Male	45.6	41.1	47.4	41.2
Female	54.4	58.9	52.6	58.8
Age:				
16 to 21 years old	31.0	47.5	22.9	22.4
22 to 34 years old	37.6	33.8	44.9	42.7
35 to 59 years old	24.2	15.8	25.9	28.2
≥60 years old	7.3	2.9	6.4	6.7
Ethnicity:				
Hispanic	24.8	6.6	57.3	20.6
Native American	1.1	1.4	0.1	1.2
Asian/Pacific	1.7	0.1	31.1	7.5
Black, not Hispanic	22.5	18.7	0.5	27.4
White, not Hispanic	49.9	73.2	11.1	43.3

SOURCE: U.S. Department of Education, Office of Vocational and Adult Education priated for fiscal year 1986 will be expended between July 1986 and September 30, 1987.

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[81] Appropriations for State grants, teacher training, and special projects gradually increased from about $20 million in fiscal year 1965 to a high point of $122 million in fiscal year 1980. (This included $22 million in emergency funding for English training of Cuban, Haitian, and Indochinese immigrants.)

In program year 1982, the Federal Government provided about 44 percent of the $229 million that State education agencies and local school districts spent on AEA programs. The Federal share declined to about one-third of AEA costs in program year 1983; about $259 million was spent on AEA programs that year, with the State and local contribution amounting to $173 million. California accounted for most of the increase in State spending, contributing $103 million in program year 1983, compared to $64.8 million in program year 1982. The decline in the Federal share also reflects the reduced Federal expenditures for AEA in fiscal year 1982.

In 1978, Congress called for expansion of the AEA delivery system so that it would include other organizations besides the public school system, including business, labor unions, and community organizations. As shown in table 7-7, a high proportion of adult education projects, especially ABE projects, are now given outside traditional elementary and secondary school settings. Congress also authorized the States to allocate some of their AEA funds to nonprofit organizations to establish or expand adult education projects. In its 1984 amendments, Congress authorized States to use AEA funds for projects run by for-profit organizations that could make a "significant contribution" to attaining the objectives of the act, and if the for-profit agency could provide "substantially equivalent education at a lesser cost" or provide "services and equipment not available in public institutions."[82]

Section 310 of AEA requires States to allocate at least 10 percent of their Federal grant to special experimental demonstration projects and teacher training. Special projects include those involving innovative methods, materials, or programs. Funding for Section 310 projects involving instructional technology doubled between fiscal years 1983 and 1985, from $600,000 to $1.2 million. States have also used Section 310 funds to develop new assessment materials and procedures, such as the California Adult Student Assessment System (CASAS). CASAS is intended to improve competency-based adult education programs.

Section 309 of AEA authorizes the Secretary of Education to set aside 5 percent of appropriated funds (but only when annual appropriations are over $112 million) for special research, development, demonstration, dissemination, and evaluation projects. Three kinds of activities are authorized: 1) "improving adult education opportunities for elderly individuals and adult immigrants"; 2) "evaluating educational technology and computer software suitable for providing instruction to adults"; and 3) "supporting exemplary cooperative adult education

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[82] Adult Education Act Amendments of 1984, Public Law 98-511, Sec. 304.

Table 7-7.—Selected Characteristics of Adult Education Projects

Characteristic	Participation, by program type (percent)			
	Adult basic education	Adult secondary education	English as a second language	All programs
Setting:				
Elementary school	12.6	5.6	5.5	8.6
Secondary school	14.4	44.1	32.5	29.0
Community college/vocational-technical school	5.5	12.2	15.0	9.8
Adult learning center	26.3	25.9	33.8	27.6
Other	41.2	12.2	13.3	25.1
Format:				
Individualized instruction	37.7	66.4	13.8	44.0
Group instruction	27.1	21.5	41.8	27.7
Combination	35.2	12.1	44.4	28.2

SOURCE: U.S. Department of Education, Office of Vocational and Adult Education programs which combine the resources of business, schools and community organizations." Funding for AEA has not reached the $112 million level, and Section 309 has not been used.

The Vocational Education Program

A continuing program of Federal support for vocational education has been in place since 1917, when the Smith-Hughes Act first authorized grants to States for vocational education in public schools and other noncollegiate institutions. Several subsequent pieces of legislation, including the vocational education acts of 1946, 1963, 1976, and 1984 expanded Federal support for vocational education. While Federal funds comprise only about 10 percent of total State and local vocational education expenditures, most of these funds are targeted for specific objectives (such as serving the needs of special populations or promoting innovation in vocational education), and often support half or more of a State's activities aimed at these specific objectives.

In 1984, Congress made far-reaching changes in the Federal vocational education program through enactment of the Carl D. Perkins Vocational Education Act (Public Law 98-524).[83] The new law places substantially more emphasis on providing vocational education opportunities to adults, displaced homemakers and single parents, and workers displaced by technological change or in need of training to remain employed. The law also authorizes States to use Federal funds to support employers in training and retraining of employees in some circumstances, and emphasizes basic skills education to a greater degree than prior vocational education law. State vocational education plans are to specify coordination provisions with Job Training Partnership Act and the Adult Education Act.

The 1984 law authorizes the appropriation of $950 million for vocational education in fiscal year 1985, and such sums as may be necessary for fiscal years 1986 through 1989, to support several existing and new program objectives. As a forward-funded program, fiscal year 1985 funds will be disbursed in the July 1985 to September 30, 1986 period. Major provisions in the law that apply to training and retraining of adult workers are discussed below.

Basic State Grants (Title II).—Basic grants, which are allocated to the States by a funding formula, comprise about 84 percent of the total funds authorized under the 1984 act. States can use these basic grants for three kinds of activities: State administration; provision of "vocational education opportunities" to certain population groups (Title IIA); and for "improvement, innovation and expansion" of vocational education (Title IIB). Congress appropriated $782.5 million for the basic grants in fiscal year 1985, and $782.4 for fiscal year 1986.

Of the total basic State grant, up to 7 percent can be used for State administration, and of the balance remaining, 57 percent is to be used to provide vocational education opportunities. This is to take the form of vocational education services and activities that "meet the special needs" and enhance participation of several groups of people, including adults in need of training or retraining, and single parents and displaced homemakers (Title IIA). States must match the 12 percent of the Title II allocation that is earmarked for adult training and retraining needs, while there is no matching requirement for the State in the case of the 8.5 percent of the Title II funds that is directed at single parents and displaced homemakers. Other groups of people covered by the targeted Title IIA allocations are handicapped persons, the disadvantaged, individuals in programs to eliminate sex bias and stereotyping in vocational education, and criminals in correctional institutions.

States have greater discretion in the use of the remaining 43 percent of their basic grant that is earmarked for improvement, innovation, and expansion of vocational education under Title IIB. Among many other things, States are authorized to use these funds for improving or expanding adult programs for upgrading the skills of employed workers, workers who are unemployed or threatened with displacement due to technological change or industrial dislocation, workers with limited English proficiency, and displaced homemakers. The law also authorizes States to use Title IIB funds to provide stipends for students with "acute economic needs" which could not be met through work-study programs. The stipends cannot exceed "reasonable amounts" prescribed by the Secretary of Education.

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[83] Public Law 98-524 amends and replaces the Vocational Education Act of 1963 (Public Law 88-210). It is named the Carl D. Perkins Vocational Education Act, in honor of the late Congressman from Kentucky who died in 1984.

Under both parts of Title II, States are authorized to use employers, private vocational training institutions and private postsecondary institutions as providers of training when these private institutions could contribute to the objectives of the State plan and could provide equivalent training at less cost, or could provide equipment or services not available at public institutions. This opens up the possibility that more training and retraining activities conducted by employers will be supported by Federal funds.

State's may use Title IIA allotments for basic skills instruction when it is related to instructional programs for those special need populations targeted by the act. Title IIB funds may be used for curriculum development in vocational education, including application of basic skills training.

Special State Programs (Title III).—Title III of the act authorizes grants for five kinds of special State programs, including programs for adult training, retraining, and employment development. This special grant may be used for vocational education programs authorized under Title II of the law that meet the needs of:

1. high school graduates or dropouts who need additional vocational education to enter the labor force;
2. unemployed people who need training to increase their employability;
3. employed individuals who need retraining to keep their jobs, or training to upgrade skills so that they can obtain a better or more dependable job;
4. displaced homemakers and single parents;
5. workers 55 and over; and
6. employers who require assistance in training individuals for new employment opportunities or in retraining employees for skills needed because of changes in technology, products, or processes.

The funds can be used for "short-term programs of retraining" for upgrading or updating skills due to changed work requirements, and for "education and training programs designed cooperatively with employers." The law identifies several examples of such cooperative efforts, including:

1. institutional and worksite programs, including apprenticeship programs;
2. quick-start customized training in new or labor short industries;
3. building linkages between vocational education institutions and private sector employers; and
4. recruitment, job search assistance, counseling and remedial services, and information and outreach programs.

The special program funds can also be used to cover the costs of serving adults in other vocational education programs, including instruction costs, and costs of keeping school facilities open longer.[84]

Although the law authorized the appropriation of $35 million for this special program for fiscal year 1985 (and such sums as are necessary for fiscal years 1986 through 1989), Congress did not appropriate funds for this purpose in fiscal years 1985 and 1986.

Another special State program authorized by Title III is for career guidance and counseling (such as activities to assist individuals in maintaining marketability of current job skills in established occupations, developing new job skills to move away from declining occupational fields, and developing midcareer job search skills). Also, Title III authorized a special program for industry-education partnerships in high-technology occupations. Congress did not provide appropriations for these programs in fiscal years 1985 and 1986.

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[84] Other examples listed in the law include curriculum development, acquisition of instructional equipment and materials, personnel training, pilot projects and related services, and instruction for apprentices in apprenticeship programs.

National Programs (Title IV).—Some of the national programs called for by the law also have direct relevance to displaced workers. (National programs are administered directly by the Department of Education, not the States.) Research is to be conducted on, among other things, strategies for improving worker training and retraining, and development of new curriculum materials and methods relating to new technology, and assessment of workplace changes and its effect on individual jobs. An independent assessment is to be made of the vocational education programs assisted by the act, including the effectiveness of the program in reaching adults and other people identified in Title IIA. The National Center for Research on Vocational Education (now housed at Ohio State University) is to undertake research and development on effective methods to provide quality vocational education to these targeted individuals, and to report annually on joint planning and coordination of vocational education law with JTPA. (The report is to go to Congress and the Secretaries of Education and Labor).

The Secretary of Education is directed to set up at least one center for retraining of displaced workers to demonstrate the application of vocational education theories to the specific problems encountered in retraining displaced workers. The Secretary is also to establish model centers to focus attention on the vocational education needs of older individuals (those 55 and above), including training and retraining of older workers whose skills have been rendered obsolete by technological change, and older individuals who are displaced homemakers.

Job Training Partnership Act

The role of remedial and vocational education in retraining displaced workers under Title III of JTPA is discussed in detail in chapter 6. In addition, Title II of JTPA can be used to provide economically disadvantaged adults and youths with basic education, vocational education, and other educational opportunities.[85] For fiscal year 1984, Congress appropriated about $1.9 billion for Title IIA activities, which are directed at provision of training opportunities for economically disadvantaged youths and adults.

The law requires States to allocate 8 percent of these funds to State educational agencies, including vocational and adult education agencies. According to U.S. Department of Education survey data on the use of the set-aside, States actually utilized $62.8 million for this purpose in the initial year (fiscal year 1984). Nearly half of the set-aside was used for postsecondary education, and about one-third was used for vocational education; only about 17 percent of these funds ($10.7 million) was used for remedial education.[86] Thus, it appears that most of the Title II set-aside is being used for postsecondary and vocational education programs, and that the State agencies are using only a small portion of the set-aside for remedial education.

While displaced worker projects supported by Title III of JTPA often provide remedial education, no special funds are set aside for remedial or other kinds of education under Title III. As is discussed in chapter 6, there is an apparent reluctance on the part of some State agency administrators to encourage greater use of remedial education in Title III projects for displaced workers. The possibility of establishing a set-aside of funds for remedial education in Title III projects is discussed in chapter 2.

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[85] Remedial education for adults was also authorized under the Comprehensive Employment and Training Act (CETA), which JTPA replaced. Under CETA, about 90,000 adults attended classes in remedial education, English as a second language, and high school equivalency in 1980. See Congressional Budget Office and National Commission for Employment Policy, *CETA Training Programs: Do They Work for Adults?* (Washington, DC: U.S. Government Printing Office, July 1982), p. 8.

[86] Information provided by the Office of Vocational and Adult Education, U.S. Department of Education. An additional $13.2 million was used for "other" purposes such as corrections programs.

As has been mentioned, Congress, in its 1984 reauthorizations of both the Adult Education Act and the vocational education program, recognized a significant need for careful coordination of these programs with JTPA, which is administered by the Department of Labor. Among other things, State planning periods under the vocational education program are to be "coterminous" with those under JTPA. Local applications for State assistance under the vocational education program are to be made available for review by the appropriate JTPA administrative entity.

Educational Support for Individuals

For several years, the Federal Government has encouraged employed adults to participate in employer-provided tuition assistance programs by making such assistance tax exempt to the employee. Job-related tuition assistance has never been considered income for employees, and is therefore tax exempt. In 1978, Congress extended this exemption to all forms of tuition assistance, including tuition assistance for courses that were not job related, provided under qualified company educational programs. This provision lapsed at the end of 1985, just as this report was being completed, raising the possibility that employer-provided tuition assistance that is not directly related to an employee's current job will be taxed as ordinary income in the 1986 tax year. However, as is discussed in chapter 2, legislation to extend the provision are under consideration in the 99th Congress. For example, a provision in H.R. 3838, the proposed tax reform bill that was passed by the House on December 17, 1985, would extend the provision through the end of 1987.

Federal financial assistance programs for students may help some employed workers, displaced workers, and homemakers who elect to participate in postsecondary vocational or academic education. Forms of Federal student aid include direct loans, guaranteed student loans, grants, veterans assistance, and other kinds of direct assistance to special populations. Many Federal assistance programs for postsecondary education support students in vocational and technical education programs at eligible (accredited) institutions as well as academic students at colleges and universities. The largest Federal assistance programs are shown in table 7-8.

A number of practical barriers make it difficult for adults to compete for the available financial assistance. Most employed adults participating in adult education are enrolled half-time or less because they are working or have family responsibilities that make it difficult to enroll full time in a program. Under most of the programs, students must be enrolled at least half-time to qualify for aid. Exceptions are Supplemental Educational Opportunity Grants and College Work-Study; even though 10 percent of the funds in these programs can be given to people enrolled less than half-time, few schools earmark the full 10 percent. Students who are not enrolled in a degree or certificate program, or other formal program of preparation for a recognized vocation, are ineligible for most forms of assistance except Guaranteed Student Loans. Adults who own their own homes may be penalized in calculations of financial need. Another problem, affecting displaced workers especially, is that determination of need for financial aid is based on the previous year income. Hence, workers who had a good income prior to a layoff may be ineligible for aid. As is discussed in chapter 2, a number of different proposals have been made to expand financial assistance opportunities for displaced workers and adults generally. Some bills, for example, propose to amend the Higher Education Act to discount home equity in calculating financial aid needs for displaced workers, and would base the determination of need on current income.

Often, student financial aid packages involve combined support from more than one Federal loan and grant programs, as well as support from other public and private institutions. Federal support (both loans and grants) generally cannot exceed $5,000 in any given academic year. Financial aid can be used for tuition, room and board, and educational assistance. Adults who are not in residence at a school may be eligible for limited "cost of attendance allowances" which may defray a portion of their living expenses while they are enrolled.

Table 7-8.—Selected Federal Postsecondary Financial Assistance Programs

			Type of postsecondary education or training						
Program	Funding level FY 1985 ($ millions)	Eligible recipients	Vocational	Undergraduate	Graduate	Professional	Other[a]	Type of assistance	Comments
Pell Grants[b]	3,612	Financially needy undergraduates enrolled at least half-time in institutions of postsecondary education who are maintaining satisfactory academic progress.	X	X				Grants, maximum $1,900 in award year 1984-85. Awards usually disbursed through the institution in which students are enrolled. Pell Grants may be used in conjunction with other Federal assistance.	About 2,850,000 students received Pell Grants in 1984-85 school year for an average award of $990. In 1983-84, 75% of awards were to students whose family incomes were $15,000 or less.
Supplemental Educational Opportunity Grants	412	Available through school to needy students as supplement to Pell Grants or to help with other educational needs. Schools can allocate 10% of funds for less than half-time students.	X	X				Grants, award level made by school but must be between $200 and $2,000.	About 655,000 students at 4,200 postsecondary schools received SEOGs in 1984-85 school year.
Guaranteed Student Loans	3,798	Students enrolled half-time at eligible postsecondary institutions. Students from families with incomes of more than $30,000 undergo a financial need test to determine eligibility.	X	X	X	X		Educational loans from participating banks and lenders, guaranteed through government.	3.3 million loans entailing $7.5 billion in borrowed capital were disbursed in FY 1984, including some multiple awards.
National Direct Student Loans	217	Students accepted or enrolled at a participating postsecondary institution who demonstrate financial need.	X	X	X	X		Loans provided through participating schools.	During 1984-85 school year, 867,000 students received loans averaging $800 from NDSL. Three fourths of NDSL awards have been given to students whose family incomes are $20,000 or less. Postsecondary institutions must match Federal loan capital contributions on a 1-to-9 basis.
College Work Study	592	Lower income undergraduate and graduate students at participating institutions. Up to 10 percent of CWS funds can be used for students enrolled less than half-time.	X	X	X	X		Grants to institutions that cover 80% of wages paid to students for part-time employment.	In 1984-85, 737,000 CWS awards were made with total funding (including matching funds by schools) amounting to $649 million. In 1982-83, about 70% of the awards were to dependent undergraduates, 20% were to independent undergraduate students, and 10% were for graduate students.
Veterans Educational Assistance Program (GI bill)	1,295	Military personnel on active duty for 180 days between 1955 and 1976.	X	X	X	X	X	Up to 45 months of assistance provided directly to eligible veterans (1.5 months of assistance per month of active service). Assistance can be used for education, on-the-job training, apprenticeships, correspondence courses, and work-study programs.	In FY 1983, GI bill educational assistance was provided to 476,104 veterans in college-level courses, 9,402 in correspondence courses, 1,118 in flight school, 25,444 in on-the-job training, 84,410 in secondary and other schools, and 2,232 in farm programs.

[a] On-the-job training, apprenticeships, etc.

[b] Formerly the Basic Educational Opportunity Grant Program. FY 1985 funding level shown does not include $250 million to cover FY 1984 shortfalls.

SOURCE: Office of Technology Assessment. Data used in this chart was assembled from several sources, including Charlotte Jones Fraas, "Student Financial Aid Programs: FY 86 Budget," Library of Congress Congressional Research Service Issue Brief 85056, Dec. 16, 1985; and Karen Spar, *Federal Employment and Job Training Programs*, Library of Congress Congressional Research Service Report 84-79 EPW, Apr. 30, 1984.

Chapter 8

The Effects of Technological Change on the Nature and Availability of Jobs

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Chapter 8

The Effects of Technological Change on the Nature and Availability of Jobs

OVERVIEW AND FINDINGS

Technology is a major influence on the nature and availability of jobs. Changes in technology can disrupt existing industries, making some jobs (e.g., typesetter) obsolete and reducing opportunities in other jobs (e.g., railroad engineer). In addition, the nature of work is altered by technological change. Many workers find their experience and skills less useful as new products and productive systems enter the workplace. Some can adjust by learning new skills. While technological change eliminates the demand for some skills and occupations, it also creates new products, new markets, and new jobs. New technologies have launched new industries, such as electronics, creating thousands of jobs.

Although technology has significant effects on the availability of jobs, aggregate demand for goods and services remains the key. In an increasingly competitive world, U.S. labor productivity (the goods or services produced per employee-hour) is crucial for capturing foreign and retaining domestic markets. The drive for greater labor productivity encourages the use of technology in place of human labor. Unless demand and output are rising faster than labor productivity, jobs will be lost. Yet if U.S. industry does not stay competitive, it will lose out to foreign producers and even more U.S. jobs will be jeopardized.

Labor productivity is only one of the factors in productive efficiency and competitiveness. Other factors include good labor-management relations, well-trained employees, improved design so that products can be made more easily and perform better, and higher quality in the sense of meeting design specifications more closely. All these factors add up to lower costs, better products, or both. The wise use of all resources, including intelligent integration of people and machines, is needed to stay competitive in world markets.

As computer-based and other advanced technologies are diffused more widely through the Nation's factories, the jobs of production workers, especially the semiskilled and unskilled, will be at risk. The employment effects of international competition are similar; lower skill jobs are the most easily exported. In many industries, from textile manufacture to the aerospace industry, advanced technologies favor the continued employment of more skilled workers, such as maintenance and repair staff, and reduced employment of less skilled operatives. Occupations involving mainly physical labor, such as moving materials and operating machines, are vulnerable. So are white-collar jobs that involve routine tasks, such as data entry.

Computer-based technologies and manufacturing systems require skills that are qualitatively different from the skills that many displaced workers possess. Workers may find that manual and routine mental skills, learned through experience, are less in demand than the capacity for judgment and evaluation, a feel for and responsibility for expensive equipment, the ability to spot problems and either solve them or call on specialists to do so, and an understanding of how one's own tasks and job fit into the larger picture. Social skills—working well with others and ability to communicate clearly about the job or tasks—are increasingly valuable. The capacity to think abstractly and to understand statistical concepts are becoming more important, as demand for sensory and manipulative skills erode. The skills increasingly in demand are provided, at least in part, by a good basic education that teaches quantitative, verbal, reasoning, and social skills.

Many of the better jobs related to advanced technologies that are open to blue-collar workers will be in maintenance and repair. Workers selected for training in these occupations are likely to have good basic educational skills. In addition, knowledge of secondary school mathematics, familiarity with computer and electronic instrumentation, and the ability to troubleshoot will be valuable assets. Although blue-collar jobs in high-technology fields are expected to increase, they will not equal the much larger numbers of semiskilled and unskilled production jobs that are disappearing. Most of the new jobs opening up will be in service industries, with many in occupations such as cashiers, nurses and aides, janitors and cleaners, truck drivers, waiters, and salespeople.

Active employees may find the nature of their work altered in the process of technological change. Jobs may be upgraded, requiring new skills and more training, or they may be de-skilled, in the sense of becoming narrower, more repetitious and less responsible. Within limits, imposed by the nature of new machines and equipment and the demands of productive efficiency, there will still be a range of options in redesigning jobs as advanced technologies are adopted. Managers and technical experts (sometimes with the participation or advice of workers) generally make decisions regarding job design. Technology (in the sense of product design and the physical apparatus to make the product) does not by itself raise, lower, or polarize the skills required in new jobs.

Businesses may find that different organizational approaches are more suited to modern technology and that managerial strategies of the past are less appropriate. Automated systems cannot be idiot-proofed; indeed they tend to be more sensitive, less robust than labor-intensive systems. Thus, although automated systems may need fewer employees, those employees (including production and nonsupervisory workers) carry heavier responsibilities and need different skills than workers in older style factories and offices. This implies that new methods of work organization that encourage workers to participate in solving problems, work with others, and make decisions as members of a team may prove more productive and efficient. Organizational changes of this kind could make the jobs of some U.S. production workers less vulnerable to competition from low-wage nations. The skills involved in these jobs could help provide the basis for premium wage rates for U.S. workers.

TECHNOLOGICAL CHANGE AND THE AVAILABILITY OF JOBS

In considering the relation between technology and jobs, it is well to clarify what "technology" means. In its most comprehensive definition, technology includes the physical devices —tools, instruments, machines, appliances— used to perform a wide variety of tasks; the whole body of technical activities that people engage in to perform the tasks—skills, methods, routines, procedures; and varieties of social organization, in factories, offices, stores, and workshops.[1] Often, however, technology is used in a narrower sense to mean the apparatus or physical devices of performance. The term is used in this narrower sense often in the following discussion, as the context should make clear. It should be kept in mind, however, that technology in the broader sense includes the activities of people, and the way their activities are combined with materials and the physical apparatus in large-scale systems.

Productivity and Jobs

In an increasingly competitive world, U.S. industries are under pressure to increase labor productivity. The drive for greater labor productivity—i.e., more goods or services produced per employee-hour—encourages the use of technology to replace human labor.[2] At the same time, unless demand and output are rising faster than labor productivity, some jobs will be lost. Yet if U.S. industry does not become more productive, many sectors are likely to lose out to foreign competition and even more jobs will disappear.

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[1] This definition owes much to Langdon Winner, *Autonomous Technology: Technics-Out-of-Control as a Theme in Political Thought* (Cambridge, MA: The MIT Press, 1977), pp. 9-12.

Overall demand remains the central factor determining the number of jobs created or displaced. Increased productivity can lower a firm's or an industry's costs, thus enhancing competitiveness, raising consumption, and creating more jobs. Moreover, when labor-saving technology is introduced during a time of general economic growth or is adopted gradually, normal attrition may take care of all or most reductions in the work force without any need for layoffs. For these reasons, increases in labor productivity do not necessarily equate to displacement. In addition, technological advances that create new products and new consumer demand are a powerful force for economic growth and the creation of new jobs.

Labor productivity is only one factor determining U.S. competitiveness. Other elements include: good labor-management relations, well-trained employees, improved design so that products can be made more easily and perform better, and higher quality in terms of meeting design specifications more closely. Labor productivity is important to lower costs and greater competitiveness, but it is one among many contributing elements.

An example of an approach to improved competitiveness that includes higher labor productivity, a better product, and improved labor relations comes from General Electric (GE) plant making household dishwashers in Louisville, Kentucky.[3] The plant underwent a major modernization program in the late 1970s. Aware of advances in Japanese manufacturing, GE rejected an $18-million proposal to make incremental improvements in the plant and instead chose a $38-million program to cut costs, improve quality, and protect the company's competitive position.

While making major changes in the manufacturing process, the program also altered product design and the use of human resources. By 1983, the refurbished plant was in full operation. The newly designed dishwasher is less expensive to manufacture and is of higher quality. The rejection rate in GE tests has dropped, the number of customer service calls has fallen, and the dishwasher was rated highly by an independent consumer organization. While output per employee rose 33 percent, increased demand for the product kept plant employment stable.

In the past, manufacturing procedures at GE were developed after the product designers had completed their work. For the Louisville program, the product and process were designed together by a multidisciplinary team. The product design allowed the use of a highly controlled manufacturing process, including a central computer and microprocessers at several points in the process. The interior of the dishwasher is a one-part plastic tub, produced automatically by a series of high-pressure injection molding machines. Molded-in features reduce the number of parts requiring assembly and allow many assembly tasks to be automated. The tub travels through numerous stages of production via an automated material-handling system. Throughout subassembly, parts are manufactured as needed, so that inventory costs are kept to a minimum.

The program also included a new approach to employee relations. Management discussed with union officials and first-line supervisors the market and business conditions impelling change. Employees were retrained for their new assignments, and information centers were established on the shop floor to keep communication channels open. The production equipment was designed to give workers greater control over their work environment than in

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[2] Historically, the United States has been particularly resourceful with labor-saving devices. See, for example, H.J. Habakkuk, *American and British Technology in the Nineteenth Century: The Search for Labor-Saving Inventions* (New York: Cambridge University Press, 1962).

[3] Based on an OTA site visit and on James Stevens, "Forging the Focused Factory," *Appliance*, June 1983, pp. 34-39; Steven C. Wheelwright and Robert H. Hayes, "Competing Through Manufacturing," *Harvard Business Review*, vol. 63, January-February 1985, pp. 99-109; H. Garrett DeYoung, "GE: Dishing Out Efficiency," *High Technology*, vol. 5, May 1985, pp. 32-33.

Photo credit: General Electric Co.

Worker monitoring General Electric's automated dishwasher assembly plant at Appliance Park, Louisville, Kentucky

traditional assembly line jobs. For example, in final assembly, an overhead conveyor positions the near-complete dishwashers. The person assembling each unit can adjust the swiveling carrier that holds the dishwasher to a comfortable position. Also, the conveyor system is designed so that workers have more than the usual control over the pacing of tasks.

In the GE Louisville plant, it is difficult to isolate the effects of improved labor productivity from other factors that helped to lower unit production costs and improve competitiveness. Automation of the plant, including integration of the product design with new manufacturing equipment and processes, contributed to raising labor productivity. The new approach to labor-management relations and extra training for the work force may also have contributed to higher labor productivity, and probably helped to improve utilization of the new capital equipment as well. The lower rejection rate after in-plant tests helped to hold down costs. The greater reliability in use (as evidenced by fewer service calls) and the design characteristics of the new dishwasher made it appealing to customers. All these factors combined contributed to increase sales, which resulted in no loss of jobs, despite higher labor productivity.

It is also difficult to isolate the effects of technology (in the sense of product design and productive apparatus) in improving labor productivity. In general, technological change rarely occurs in an otherwise unchanging environment. Other factors, such as labor-management relations, may change as well. The moving assembly line, developed by Henry Ford in 1914, is one of the best-known examples of productivity-enhancing technological advance. This innovation was credited with an eightfold improvement in productivity over traditional methods, which brought the cost of an automobile within the reach of a mass market.[4] However, Ford's innovations were not confined to technology alone. He also made significant changes in labor policy, offering an 8-hour workday and doubling wages, to $5 per day. In this historic case, the role of technology cannot be entirely separated from other factors affecting productivity.

Different Measures of Productivity

Another way to illuminate the importance of human factors in raising productivity, lowering costs, improving quality, and maintaining competitiveness is to consider different measures of productivity. The term "productivity" usually denotes output per unit of labor, but it can refer to both labor and capital, as in the following definitions:

- labor productivity: output per labor-hour;
- capital productivity: output per unit of capital (physical assets); and
- multifactor productivity: output per unit of labor and capital, measured in dollars.[5]

The Bureau of Labor Statistics (BLS) compiles data on productivity as output divided by units of both labor and capital, and analyzes the data by sector for private business, private nonfarm business, and manufacturing.[6] Rising labor productivity combined with rising capital expenditures indicate that technology is being used to make labor more efficient and to limit the wage bill. This is a familiar concept, and generally describes the pattern in U.S. industry since World War II. The less familiar measure of capital productivity indicates how efficient the use of equipment, inventories, buildings, and land is, in terms of raising output. Equipment—the capital asset that embodies new technologies—was the fastest rising capital input from 1948 to 1981, growing 5 percent per year.

As figure 8-1 shows, output per hour for all persons (labor productivity) rose more than twofold from 1948 to 1984. Output per unit of capital assets, on the other hand, did not rise. For over three decades there was "no apparent long-term savings in the amount of capital services required to produce a unit of output."[7] New technology, therefore, has not lessened capital costs in the U.S. economy since World War II; it has served to limit labor expenditures. In other industrialized nations, capital productivity declined since 1955—except for Japan, which experienced a moderate rise.[8]

The reasons why U.S. capital productivity stayed flat for nearly 40 years are not clear, but its failure to grow argues for greater attention to the efficient use of technology. This may come about through widespread adoption of tactics that many successful companies here and abroad already use; for example, closer links between product design and manufacture, less idle time for capital equipment, better training for employees so they can use equipment more effectively, and improved labor relations that give employees a greater say and greater stake in the future of the enterprise.[9] More efficient use of capital equipment can also contribute to lower costs and higher quality. Attention to improving human capital is also likely to raise labor productivity as well as capital productivity.

Both technology and people are vital resources for more efficient economic production. A sur-

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[4] William J. Abernathy, *The Productivity Dilemma: Roadblock to Innovation in the Automobile Industry* (Baltimore: John Hopkins University Press, 1978).

[5] Output is estimated in dollars, adjusted for inflation.

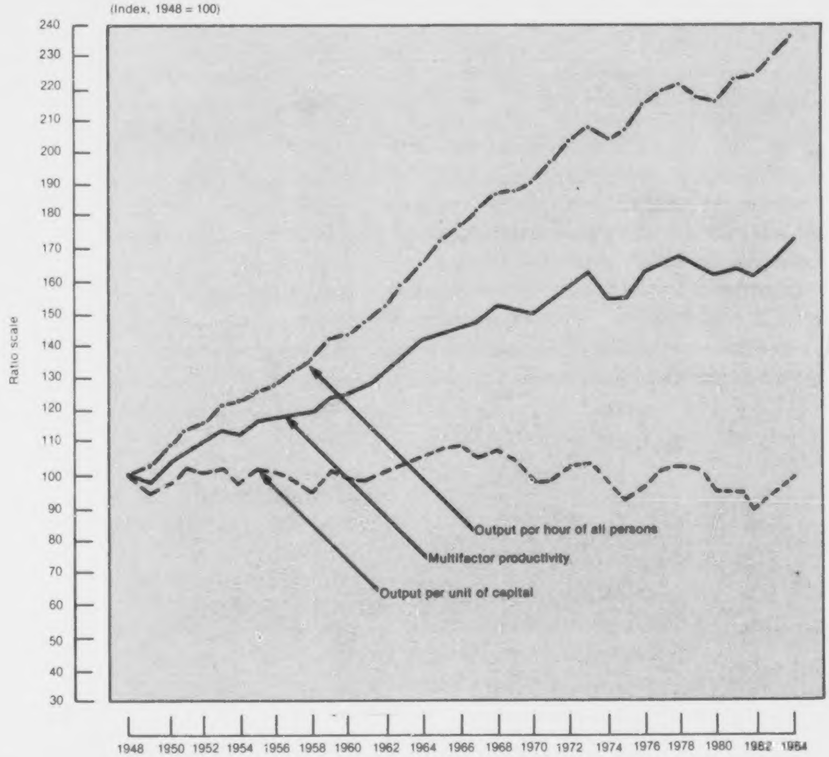
[6] U.S. Department of Labor, Bureau of Labor Statistics, "Trends in Multifactor Productivity, 1948-1981," Bulletin 2178, September 1983. The analysis excludes government enterprises, which accounted for 2 percent of total business output in 1981.

[7] Ibid., p. 16.

[8] Luc Soete and Christopher Freeman, "New Technologies, Investment and Employment Growth," *Employment Growth and Structural Change* (Paris, France: Organisation for Economic Co-operation and Development, 1985), p. 67. For a review of Canadian manufacturing, see Uri Zohar, *Canadian Manufacturing: A Study in Productivity and Technological Change, Volume I: Sector Performance and Industrial Strategy* (Toronto: James Lorimer & Co., 1982).

[9] See, for example, Harry Maier, "Innovation, Efficiency, and the Quantitative and Qualitative Demand for Human Resources," *Technological Forecasting and Social Change*, vol. 21, 1982, pp. 15-31; Soete and Freeman, op. cit., pp. 52-82.

Figure 8-1.—Private Business Sector: Output per Hour of All Persons, Output per Unit of Capital, and Multifactor Productivity, 1948-84



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, "Trends in Multifactor Productivity, 1948-1981," Bulletin 2178 September 1983 p. 22; and *Monthly Labor Review*, vol. 108, No. 11, November 1985, p. 99.

vey of industrial engineers, for example, indicates that effective strategies for increasing overall productivity rely on people as well as machines (table 8-1). Of the organizations surveyed, 69 percent undertook employee involvement programs; the engineers rated 63 percent of these programs successful in raising productivity. Worker training was used less frequently, but was rated 74 percent successful. The engineers found that capital investment for new or automated machinery was 86 percent effective, but the introduction or expansion of robotics was successful less than 50 percent of the time.

Technology, Productivity, and Demand

Technology, productivity, and demand affect each other and also affect employment. Productivity gains, by lowering costs, can stimulate greater demand. Rising demand can offset the employment-shrinking effects of gains in productivity.

In telephone services, for example, technology promoted dramatic increases in labor productivity and also contributed to rapid growth in demand (figure 8-2 and table 8-2). Computerized switching and direct long-distance dialing resulted in falling costs for long-distance service and generally lower rates (in constant dollars) to customers.[10] While employment in

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[10] While costs of long-distance calls were falling, costs of local service rose, reflecting rising input prices and the lack of technological changes comparable to those of toll calls. Until 1982, the AT&T system used some of the revenues from long-distance calls to reduce local service rates (in constant dollars). See U.S. Congress, Congressional Budget Office, ***The Changing Telephone Industry: Access Charges, Universal Service, and Local Rates*** (Washington, DC: U.S. Government Printing Office, 1984).

Table 8-1.—Productivity Improvement Activities Undertaken in the United States, Based on a Survey of Industrial Engineers

New activity	Undertaken activity	Effective
Formal employee involvement in productivity improvement planning and evaluation (quality circles, suggestion programs, etc.)	68.7%	63.1%
Evaluating performance and establishing specific productivity improvement targets	63.3	66.7
Introduction or improvement of inventory control methods	64.4	70.8
Capital investment for new or automated machinery (not including robotics)	75.1	85.7
Introduction or expansion of use of robotics	25.9	44.1
Introduction or improvement of quality control methods, etc.	66.2	73.0
Systems innovation (integrated factories, advanced material-handling techniques, computerized manufacturing methods, etc.)	45.1	70.7
Improvement of quality of product through worker training	48.7	73.5
Development of indirect-labor standards and controls	30.9	54.1
Other[a]	76.1	94.3

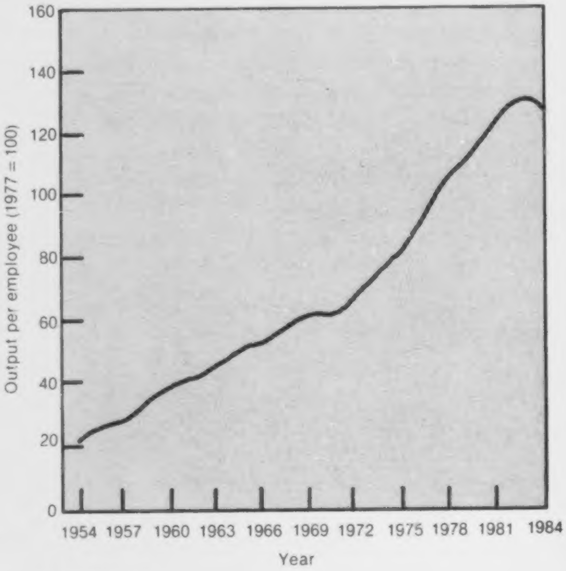
NOTE: Based on a sample of 765 nonstudent Industrial Engineers in the United States.

[a] The high success rate of "other" activities implies the importance of productivity efforts tailored to meet specific conditions.

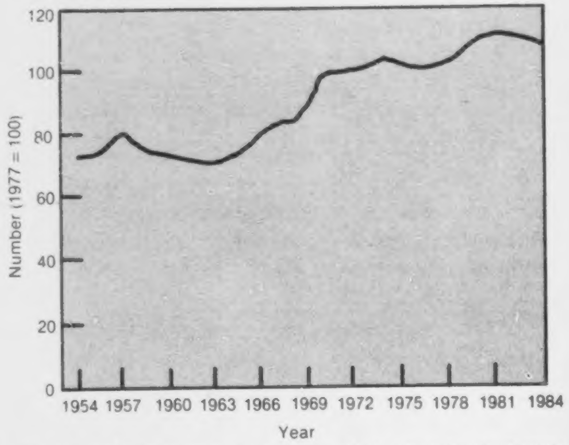
SOURCE: Lane Gardner Camp, "IEs Evaluate Productivity Improvement Efforts in Own Organizations and Across U.S.," *Industrial Engineering*, vol. 17, January 1985, p. 82.

Figure 8-2.—Telephone Communications (SIC 4811)

Labor productivity



Employees



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Productivity Measures for Selected Industries 1954-82*, Bulletin 2189 (Washington, DC: U.S. Government Printing Office, December 1983).

1985 was about the same as in 1972, operating revenues had more than doubled in constant dollars. Output per employee hour, or labor productivity (as defined and calculated by BLS) rose 85 percent.

The remarkable changes in technology for long-distance calls has affected the composition of the work force in the telephone service industry, as well as the overall employment level. In the 30 years from 1950 to 1980, employment in the industry rose 60 percent. At the same time, while long-distance calls increased fifteenfold, operators declined from 43.5 percent of the industry work force to 14.1 percent, with an absolute loss of more than 100,000 jobs (table 8-3). Meanwhile, professional and semiprofessional jobs rose from 4.9 to 12.2 percent, business and sales jobs from 5.3 to 11.1 percent, and construction, installation, and maintenance jobs from 23.7 to 36.5 percent of industry employment.[11]

Recent economic and technological changes in the telephone industry may affect the industry's relatively stable employment level of the

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[11] George Kohl, *Technological Change in Telecommunications: Its Impact on Work and the Worker* (Washington, DC: Communications Workers of America, 1984).

Table 8-2.—Operating Revenues, Employment, and Labor Productivity, Telephone and Telegraph Services Industry (SIC 4811 and 4821), 1972-85

Year	Domestic operating revenues (in millions of current dollars)	Domestic operating revenues (in millions of 1972$)	Total employment (000s)	Production workers (000s)	Output per employee hour 4811 only (1977 = 100)
1972	25,750	25,750	1,002	790	70.0
1973	29,600	—	1,007	780	74.6
1974	32,200	—	1,010	778	78.4
1975	35,900	—	981	748	85.9
1976	40,400	—	961	730	93.3
1977	44,100	38,150	975	738	100.0
1978	49,500	43,574	1,013	756	105.8
1979	54,754	48,957	1,070	789	110.8
1980	61,208	50,253	1,082	795	118.1
1981	70,837	53,664	1,095	796	124.4
1982	78,886	56,752	1,100	790	130.1
1983	86,870	57,952	984	720	—
1984[a]	95,700	62,345	1,010	749	—
1985[b]	106,000	65,760	1,000	745	—

NOTE: Only a small proportion of total employment in the telephone and telegraph services industry is in telegraph services (2 percent in 1985). However, the data on operating revenues are not broken down between telephone services (SIC 4811) and telegraph services (SIC 4821). For this table, employment is reported for the two industries combined.

[a] Estimate.

[b] Forecast.

SOURCES: U.S. Department of Commerce, International Trade Administration, *U.S. Industrial Outlook 1985* (Washington, DC: U.S. Government Printing Office, January 1985); and U.S. Department of Labor, Bureau of Labor Statistics, *Productivity Measures for Selected Industries 1954-82*, Bulletin 2189 (Washington, DC: U.S. Government Printing Office, December 1983).

Table 8-3.—Telephone Operator Employment and Long-Distance Calls, 1950-80

Year	Number of long-distance calls (000s)	Number of operators
1950	175,721	244,190
1955	218,544	242,105
1959	365,114	198,499
1962	377,253	167,215
1970	884,285	213,614
1975	1,492,782	176,454
1980	2,641,713	128,214

SOURCE: George Kohl, *Technological Change in Telecommunications: Its Impact of Work and the Worker* (Washington, DC: Communications Workers of America, 1984).

past decade. The breakup of the Bell System by consent decree in 1982 encouraged competition that had already begun in pursuit of AT&T's long-distance markets; competitors include ITT, IBM, Northern Telecom, GTE, and Western Union. Moreover, the telecommunications and data processing industries are converging, and new technologies are developing rapidly in the combined industries. Many of these new technologies rely on digital equipment and computer software. Examples include satellite microwave communications, cellular mobile and air-to-ground telephones, electronic mail and banking, electronic credit card verification, digital paging, and automatic credit card calling.

The race to develop technologies and capture markets will continue, and the total market is expected to grow and change rapidly. The implications for employment are uncertain. While fast growing markets are usually expected to create new jobs, many of the new applications of telecommunications and data processing are highly automated already. Some technologies, such as electronic banking, have reduced the need for human labor, a trend that may be seen throughout telecommunications. Intensified competition, moreover, may bring about job losses and displacement. In August 1985, for example, AT&T announced it would cut 24,000 jobs in its information systems division, which makes and markets communications and computer equipment. The reason given was competitive pressure and the need to cut costs.[12] Some of these jobs were in the manufacture of equipment, and were exported to a lower wage facility abroad (see ch. 9).

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[12] Mark Maremont and Michael A. Pollock, "AT&T Hangs Up on 24,000 of Its Workers," *Business Week*, Sept. 2, 1985, pp. 35-36.

A contrary example is the plastics products industry, where no broad shift to new labor-saving technology has occurred in recent years. The plastics market grew rapidly from 1972 to 1985 as plastics replaced traditional materials (e.g., glass, paper, metal, and wood) in a broad range of products, from toys to automobile bumpers; the value of shipments rose 70 percent (constant dollars) in this period (table 8-4).

A common method of plastics product manufacture is injection molding. The job of the operator controlling the injection molding machine is an important one in the industry, accounting for about 100,000 of total industry employment of roughly half a million.[13] In most plastics plants, this job has not changed much since the early 1970s. Nor has labor productivity in the plastics products industry risen much; it increased only about 14 percent from 1972 to 1981 and did not keep up with growth of labor productivity in all manufacturing.[14] With the expansion of the plastics market and the less-than-average rise in labor productivity, employment in plastics climbed 35 percent from 1972 to 1981 (table 8-4), while the constant dollar value of shipments rose 47 percent.

Technology does exist for greater automation of injection molding and higher labor productivity. Computerized automated equipment can deliver molds and load plastic resins into the molding machine, and electronic sensors can monitor the operation throughout its cycle. Thus, in principle, the need for operators can be greatly reduced. Plants that mass produce a standard product (e.g., bleach bottles) can use highly automated systems. GE uses such a system in its Louisville dishwasher plant. The typical plastics product shop, however, is not large, and produces a variety of products in relatively small batches. Even though computerized equipment exists for batch production (capable of delivering the correct mold to the machine), few shops have installed it. Whether the

Table 8-4.—Trends in Output, Employment, and Productivity, Miscellaneous Plastics Products Industry (SIC 3079), 1972-85

Year	Value of shipments (millions)	Value of shipments (1972$)	Total employment (000s)	Production workers (000s)	Output per employee hour (1977 = 100)
1972	10,696	10,696	346.9	276.4	86.6
1973	12,944	12,446	385.4	307.0	93.6
1974	15,190	11,702	377.5	301.6	86.2
1975	14,810	9,966	335.4	260.4	86.2
1976	18,189	11,586	375.2	295.7	89.5
1977	23,693	14,571	453.7	358.0	100.0
1978	26,796	15,922	486.6	384.8	100.8
1979	29,116	15,620	487.7	386.8	94.8
1980	30,583	14,977	470.1	368.9	95.7
1981	34,122	15,761	469.5	369.5	98.5
1982	37,029	16,672	479.2	369.1	—
1983[a]	38,350	16,932	510.1	397.7	—
1984[a]	41,575	17,691	591.1	469.8	—
1985[b]	—	18,225	—	—	—

NOTE: Miscellaneous Plastic Products (SIC 3079) is the industrial classification for the manufacture of plastic goods not classified elsewhere. This group encompasses about half the total output of plastic materials.

[a] Estimate.

[b] Forecast.

SOURCES: U.S. Department of Commerce, International Trade Administration, *U.S. Industrial Outlook 1985* (Washington, DC: U.S. Government Printing Office, January 1985); and U.S. Department of Labor, Bureau of Labor Statistics, *Productivity Measures for Selected Industries 1954-82*, Bulletin 2189 (Washington, DC: U.S. Government Printing Office, December 1983).

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[13] The number of operators classified by BLS as compression and injection mold machine operators, plastics, was 101,000 in 1979 and 93,000 in 1982, with the decline probably due largely to the recession. Figures for this occupation for later years were not available when this report was written. Total employment in the miscellaneous plastics products industry (SIC 3079) was 488,000 in 1979 and 479,000 in 1982.

[14] James D. York, "Productivity Growth in Plastics Lower Than All Manufacturing," *Monthly Labor Review*, vol. 106, September 1983, pp. 17-21.

structure of the industry and cost considerations will remain the same over the next dozen years is unknown, so that employment estimates must remain largely speculative. If the labor-saving technology is widely adopted, employment of molding machine operators could shrink. Yet lowered costs might lead to further expansion of demand for plastics, with the effect of adding jobs in the industry—though not necessarily in the occupation of molding machine operator.

Occupational Shifts

As the example of the telephone industry indicated, technological changes that influence employment do not affect all kinds of jobs equally. Historical data on employment provide a source of insight on the links between technological change and occupational patterns. Aggregated employment data, however, are only suggestive, since factors other than technology are major causes of many occupational shifts. As chapter 9 discusses, it is difficult to separate the influences of technology, international trade, domestic competition, and changes in consumer preference on employment even in specific industries or occupations, much more so throughout the economy. For example, competition from low-wage countries may impel U.S. manufacturers to adopt labor-saving technology that eliminates many blue-collar production jobs; or companies may decide instead (or in addition) to shift some production jobs abroad. Thus the observation that production jobs have declined as a share of manufacturing jobs for several decades does not tell us directly that technology is eliminating jobs. Analysis of individual industries and occupations is needed to investigate, in each case, the importance of various factors in the rise or fall of employment.

The Past

Historical data are not complete, but changes can be tracked in broad occupational groups. The groups are professional and technical workers, such as scientists, engineers, technicians, purchasing agents, and accountants; managers and administrators; salesworkers, such as sales clerks and agents; clerical workers, such as office clerks, secretaries, keypunch operators, and bookkeepers; craft and kindred workers, such as carpenters, mechanics, machinists, and typesetters; operatives, such as assemblers, machine tool operators, production painters, and forklift operators; nonfarm laborers, such as pipelayers, helpers, and highway maintenance workers; service workers, such as building custodians, waiters and waitresses, flight attendants, and barbers; and farmworkers.

The 20th century has seen major changes in employment by occupation. Most notable is the decline in prominence of farmworker jobs. The number of farmworkers fell from 37.5 percent of the work force in 1900 to less than 3 percent in the 1980s (table 8-5, figure 8-3). The change stemmed from the mechanization of agriculture and other advances in technology (e.g., the development of new crop varieties and the rapidly increasing use of commercial fertilizers and pesticides), as U.S agricultural production tripled and productivity rose elevenfold during the period.

Since World War II, the number of production workers in manufacturing industries has also declined relative to the total work force, although more moderately. Both the relative share of manufacturing jobs in the economy and the relative share of production jobs in manufacturing have declined (figures 8-4 and 8-5). Within manufacturing, the proportion of production workers went from 84 to 69 percent between 1947 and 1984. From 1979 to 1985, manufacturing employment dropped absolutely as well, by over 1.7 million jobs. Nearly all of the jobs lost were those of production workers.[15]

The unskilled occupation of nonfarm laborer has declined sharply in this century, from 12.5 percent of U.S. employment in 1900 to 4.6 percent in 1980. With growing industrialization in the first half of the century, operatives (most of them semiskilled manufacturing workers)

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[15] See ch. 4 for a discussion of employment trends.

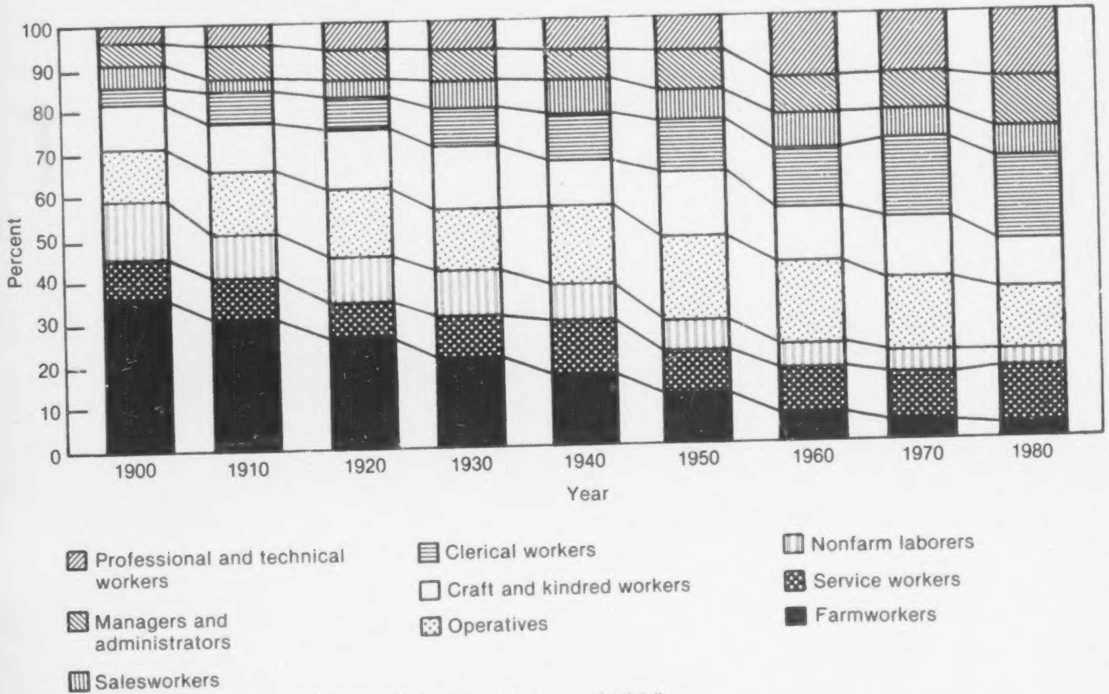
Table 8-5.—Percentages of Total U.S. Employment Accounted for by Major Occupational Groups, 1900-80

Occupational group	1900	1910	1920	1930	1940	1950	1960	1970	1980
Professional and technical workers	4.3	4.7	5.4	6.8	7.5	8.6	10.8	14.5	16.1
Managers and administrators	5.8	6.6	6.6	7.4	7.3	8.7	8.1	8.1	11.2
Salesworkers	4.5	4.7	4.9	6.3	6.7	7.0	7.1	7.0	6.3
Clerical workers	3.0	5.3	8.0	8.9	9.6	12.3	14.1	17.8	18.6
Craft and kindred workers	10.5	11.6	13.0	12.8	12.0	14.2	13.6	13.9	12.9
Operatives	12.8	14.6	15.6	15.8	18.4	20.4	18.9	18.0	14.2
Nonfarm laborers	12.5	12.0	11.6	11.0	9.4	6.6	5.2	4.7	4.6
Service workers	9.0	9.6	7.8	9.8	11.7	10.5	11.2	12.8	13.3
Farmworkers	37.5	30.9	27.0	21.2	17.4	11.8	6.0	3.1	2.8

NOTE: Figures are approximate, due to changing classification systems. See sources for details.

SOURCES: U.S. Department of Commerce, Bureau of the Census, *Historical Statistics of the United States*, Part 1 (Washington, DC: U.S. Government Printing Office, 1975); and U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*, January 1981).

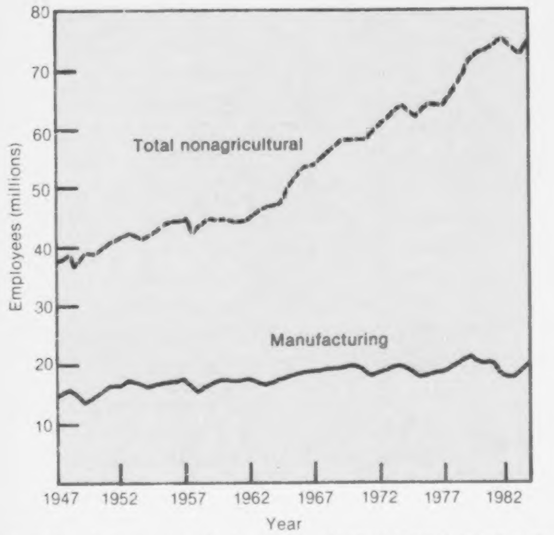
Figure 8-3.—Major Occupational Groups of the U.S. Civilian Labor Force, 1900-80



NOTE: Figures are approximate, due to changing classification systems. See sources for details.

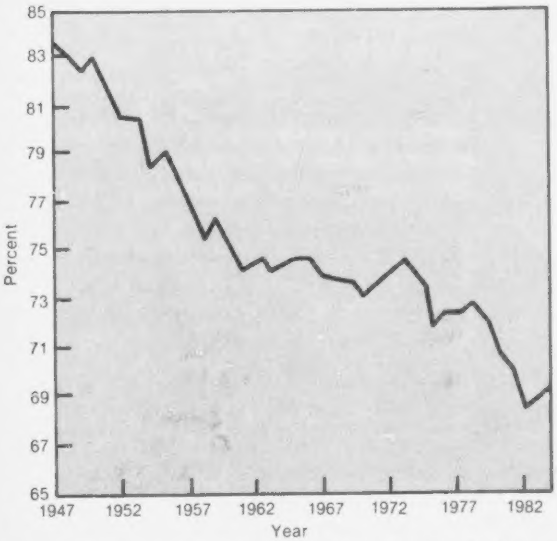
SOURCES: U.S. Department of Commerce, Bureau of the Census, *Historical Statistics of the United States*, Part 1 (Washington, DC: U.S. Government Printing Office, 1975); and U.S. Department of Labor, Bureau of Statistics, *Employment and Earnings*, January 1981).

Figure 8-4.—Total Private Nonagricultural and Manufacturing Employment, 1947-84



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings.

Figure 8-5.—Production Workers As a Percent of Total Manufacturing Employment, 1947-84



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings.

rose to 20.4 percent of all workers in 1950, but fell thereafter to 14.2 percent. The proportion of skilled blue-collar craft and kindred workers also declined, but less steeply. The most remarkable occupational increases were those of clerical workers (rising from 3.0 to 18.6 percent of the work force from 1900 to 1980) and of professional and technical workers (rising from 4.3 to 16.1 percent).

Even though forces other than technology contributed to occupational shifts from 1900 to 1980, and even though occupational titles changed their meaning over these years, technology has apparently created demands for more highly skilled workers, and diminished demands for less skilled workers, in this century.

The Present and Near Future

This report and other recent OTA assessments have found that the technological advances now taking place favor the continuation of some but not all of the occupational trends of past decades.[16] Computer-based technology is transforming many kinds of work, and is a major factor in shifting demands for some skills, groups of skills, and occupations to others. Several general patterns are emerging:

- In manufacturing, where about 18 percent of employed Americans now work, job opportunities will probably rise for technicians, mechanics, repairers, and installers, as well as for engineers and computer scientists.
- Employment opportunities in manufacturing will probably fall for all production workers. This includes operatives, especially those doing the most routine work; laborers; and many metalworking craft-

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[16] U.S. Congress, Office of Technology Assessment, *Computerized Manufacturing Automation: Employment, Education, and the Workplace*, OTA-CIT-235 (Washington, DC: U.S. Government Printing Office, April 1984), ch. 4; U.S. Congress, Office of Technology Assessment, *Automation of America's Offices, 1985-2000*, OTA-CIT-287 (Washington, DC: U.S. Government Printing Office, December 1985), ch. 2.

workers, such as machinists and press operators. Job openings for lower and middle managers may also fall.

- In offices, where 40 to 45 percent of workers are employed, growth in job opportunities will probably slow down over the next few years and by the 1990s may begin to decline. Specific jobs most likely to decline are those for clerical workers, especially where the main tasks are entering and transferring data. Employment opportunities may also shrink for lower and middle managers.[17]

The finding for clerical workers indicates a break with the past. With the rapid diffusion of office automation, clerical worker jobs may undergo the kind of downturn experienced by operatives since 1950. The OTA report *Automation of America's Offices, 1985-2000* found that computers are a fundamental technological change, as telephones and typewriters were —not just a marginal improvement.[18] Overall it appears that the trends of past decades toward greater demand for professional and technical workers and slackening demand for manufacturing production workers will continue or perhaps accelerate. In manufacturing, the effects of computer-based and other advanced technologies on occupational patterns probably reinforce the effects of international competition (see ch. 9). Both forces put the jobs of production workers, especially the semiskilled and unskilled, at risk.

Many industries illustrate the point. A leading example is the motor vehicle industry, responding to pressure from foreign competition by large capital investments in new equipment, redesign of products, and reorganization of plants and firms. The end result is fewer jobs in planning and scheduling, in moving parts around the factory, and in painting, welding, and assembling automobiles. In many plants, robots already apply sealant and paint and do spot welding; automated materials handling nearly eliminates the need for human forklift operators. Jobs for factory clerks decline as computer-controlled just-in-time delivery systems are installed. The potential for further reduction of semiskilled jobs appears high. New body designs (as in the Chrysler minivans) facilitate assembly by robots and also reduce the number of parts that have to be assembled. Automation of testing and inspection implies further losses of job opportunities for semiskilled workers.

Besides the much-publicized robots and other forms of computerized automation now being adopted in auto manufacture, less noticed but significant changes in conventional equipment have eliminated some semiskilled jobs.[19] For example, new coatings for machine tool cutting edges can double the cutting speeds, thus improving productivity and reducing demand for machine operators. Quick die change presses are more expensive than conventional equipment and are used mainly where dies have to be changed frequently; but these presses can be operated by one worker at a master control panel—compared to at least six on conventional presses.

Some skilled production workers, such as machinists and tool and die makers, in autos are also being displaced. In the future, as computerized equipment becomes more reliable and electronic diagnosis is increasingly available, maintenance and repair workers may be less needed. Among technical occupations, drafting is declining. For the present and near future, prospects for employment growth in production are favorable for electricians and mechanics, repairers, and installers, but the increased demand for craft and technical workers will be less than the reduction in demand for operatives.

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[17] Overall employment in offices—just as in manufacturing and in specific industries—is determined by other factors besides technology, most significantly product demand. By lowering costs, changing the services offered, and improving quality, technological advance can help to raise demand for the services provided by office workers (e.g., banking, financial services), as it does for manufacturing products. Thus, if overall demand rises enough, the employment-dampening effects of technology on office jobs may be offset. This does not affect the conclusion that among office workers, the clerical worker job is most at risk from technological advance.

[18] The Bureau of Labor Statistics, in its occupational employment forecasts, takes a more gradual view of the effects of office automation and indicates continued growth in office employment. An evaluation of the way BLS generally takes technological change into account in its occupational employment forecasts appears in app. 8A of this chapter. The OTA report *Automation of America's Offices, 1985-2000* evaluates the BLS method for handling technological change in relation to office automation. Ibid.

[19] See U.S. Department of Labor, Bureau of Labor Statistics, *The Impact of Technology on Labor in Four Industries*, Bulletin 2228 (Washington, DC: U.S. Government Printing Office, 1985).

The textile industry, like the auto industry, is under intense pressure from foreign competition, and many of the larger mills are responding with rapid adoption of automated machinery.[20] Federal regulations limiting cotton dust levels to protect workers' health may also have contributed to the rapid pace of modernization. In modern mills, a continuous opening-blending-carding operation (known as direct-feed carding) both raises productivity and meets the cotton dust regulations.

Unskilled and semiskilled jobs dwindle in the modern direct-feed carding plant. The semiskilled job of picker operator is eliminated, and there is no need for laborers to move fiber laps from one separate machine to the next. Also, labor for cleaning and maintaining the machines is reduced, since cotton dust levels are lower. Spinning, the final step in yarn manufacture, is also being modernized as open-end or rotor spinning replaces ring spinning. The modern machine integrates several processes that were separate (roving, spinning, and winding), can outproduce the conventional spindle four or five times, and do it with less semiskilled and unskilled labor. In weaving, shuttleless looms average two to three times the output of conventional looms and thus require fewer operators. Demands for skilled technicians have risen in modernized plants; shortages are reported in some areas.

In the aerospace industry—aircraft, missile and space, and avionics (electronic communication, control, and monitoring equipment)—technological advances also appear to be reducing jobs for production workers.[21] However, demand for the product is a more obvious and powerful influence on both total employment and production jobs. Table 8-6 shows a clear pattern of rises and falls of production jobs in aerospace depending on sales—from highs of over $30 billion in 1968 and 1983, when military aircraft purchases were large, to a low of $21.5 billion (constant 1972 dollars) in 1977.

Nonetheless, as is typical for high-technology industries, the proportion of production workers is lower than the all-manufacturing average, and is declining. Aerospace is by any definition a high-technology industry, with a ratio of research and development expenditures to net sales at least twice the average for all industries and a relatively high proportion of technology-oriented workers.[22] From 1972 to 1982, growth in the industry's spending for new capital averaged 23 percent per year—nearly as high as in the computer industry. This rate compares, for example, with a growth rate in capital spending of less than 10 percent in the automobile industry during the same period.[23] The proportion of scientists, engineers, and technicians in the work force is high—over 25 percent in 1985.

Production workers accounted for only 45 percent of the aerospace industry work force in 1985, compared with 68 percent in manufacturing industries overall. The share of production jobs in aerospace employment has declined from 52.6 percent in 1968 (table 8-6). Although numbers on employment losses related to technological change in the industry are elusive, it seems likely that the industry's widespread adoption of numerically controlled (NC) equipment since the late 1960s has been a factor in the relatively low and declining level of production jobs.

NC machine tools were introduced in the aerospace industry in the 1950s, partly because

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[20] Ibid.; see also U.S. Department of Commerce, International Trade Administration, *1986 U.S. Industrial Outlook* (Washington, DC: Department of Commerce, January 1986), p. 42-2. See ch. 9 for discussion of the effects of international trade on textile industry employment.

[21] Information in this section was drawn from OTA staff visits to an aerospace manufacturing plant and publications of the U.S. Departments of Labor and Commerce and the Aerospace Industries Association of America, as cited below.

[22] For definitions of high-technology industries and data on their employment, see U.S. Congress, Office of Technology Assessment, *Technology, Innovation, and Regional Development*, OTA-STI-238 (Washington, DC: U.S. Government Printing Office, July 1984). The aerospace industry is included under all definitions, including the most restrictive (ratio of R&D spending to sales twice the average).

[23] U.S. Department of Commerce, International Trade Administration, *1986 U.S. Industrial Outlook*, op. cit., pp. 28-8, 36-4, 37-13.

Table 8-6.—Aerospace Industry Employment by Occupational Group, 1968-85

		Employees							
Year	Sales (in billions of 1972$)	Total (000s)	Production workers (000s)	Percentage of total	Scientists and engineers	Percentage of total	Technicians	Percentage of total	All others
1968	30.1	1,403	738	52.6	221	15.8	81	5.8	363
1969	27.9	1,295	658	50.8	203	15.7	72	5.6	362
1970	26.5	1,069	528	49.4	167	15.6	67	6.3	307
1971	22.3	924	448	48.5	159	17.2	60	6.5	257
1972	21.5	944	473	50.1	168	17.8	65	6.9	238
1973	23.4	962	484	50.3	164	17.0	66	6.9	248
1974	23.1	973	483	49.6	166	17.1	67	6.9	257
1975	22.4	925	444	48.0	167	18.1	63	6.8	251
1976	21.7	898	420	46.8	166	18.5	62	6.9	250
1977	21.5	894	410	45.9	173	19.4	59	6.6	252
1978	22.6	1,032	519	50.3	170	16.5	64	6.2	279
1979	24.8	1,152	592	51.4	177	15.4	69	6.0	314
1980	27.9	1,218	612	50.2	196	16.1	78	6.4	332
1981	29.6	1,203	578	48.0	194	16.1	84	7.0	347
1982	29.4	1,153	535	46.4	200	17.3	79	6.9	339
1983	30.8	1,171	528	45.1	207	17.7	87	7.4	349
1984[a]	—	1,252	567	45.3	223	17.8	93	7.4	369
1985[a]	—	1,299	584	45.0	234	18.0	98	7.5	383

NOTE: Data based on December survey. Industry strikes occurred in 1977 and 1983. Employment figures include aircraft, missile, and space industries (SIC 372 and 376); estimated aerospace-related communication equipment (SIC 3662) and instruments (SIC 381 and 382); and estimated related products (SIC 28, 35, 73, 89, etc.).

[a] Estimates.

SOURCE: Aerospace Industries Association, *Aerospace News*, Washington, DC, Apr. 19, 1985; and Aerospace Industries Association, *Aerospace Facts and Figures 1984/85* (New York: Aviation Week & Space Technology, 1984).

they were able to meet demanding specifications for military orders (which account for 50 to 70 percent of the aerospace business). In addition, the automated tools save the production labor of skilled and semiskilled machine operators. Other NC applications reduce the need for several kinds of semiskilled production labor. For example, NC pipe-bending machinery eliminates the need for time-consuming measuring and bending of pipes by humans. NC riveting improves quality and reduces the number of riveters required for a given job. Fiber-optic cable and new cockpit designs promise to reduce the need for a range of production work in electrical wiring, from the semiskilled job of cutting wires to specified lengths to the more skilled tasks of wire-splicing and routing.

The employment figures in the aerospace industry suggest some of the difficulties that production workers losing jobs in manufacturing now face. Displaced production workers who want to remain in the same industry will need training to qualify for one of the growing technical occupations. Yet there are not enough of these jobs to go around. Between 1968 and 1985, technical jobs in aerospace grew by 30,000, while jobs for production workers dropped by 154,000.

TECHNOLOGICAL CHANGE AND THE NATURE OF JOBS

Technological change affects not only the number of jobs but also their nature. Skills may become obsolete, new skills may be demanded, and the content of particular jobs may be altered. If automation simplifies or de-skills a job, wages for that kind of job may fall; or the job may become mechanical and stultifying. On the other hand, new technologies may open possibilities of more interesting, better paid jobs, at least for those workers with the skills to qualify.

Concerns about the effects of technology on the nature and quality of jobs and the skills required for them are not new. As factory automation was adopted in the late 1950s, many people expected not only that factory employment would fall but that blue-collar workers would have to acquire higher skills to deal with the new equipment. With the rapid economic growth and falling unemployment rates of the 1960s, these concerns diminished. Some skills and occupations were obviously affected—those of compositors, for instance, as typesetting was computerized, or longshoremen, with changes in packaging and containerization. Many of the affected workers were represented by strong unions, which won comfortable settlements for those who were displaced. More generally, the strong economic growth and rising real wages of the 1960s eased readjustment problems.

Today, the debate on what technology is doing to skill requirements has reappeared and now extends to white-collar and service workers as well as blue-collar workers. Two opposing points of view are prominent—that technological change leads to upgrading of skills, making for better jobs but also requiring more training or education, so that less skilled people may have trouble finding jobs; or, on the contrary, that advanced technology de-skills jobs, making them narrower, more repetitious and perfunctory, and leaving workers as nothing but machine tenders at relatively low pay. A third view has also emerged: that technological changes are increasing the quality and number of some higher level jobs while eliminating or downgrading middle-level positions, thus creating a skills gap between lower and higher level jobs.

Framed in this way, the arguments are overly simple. First, they focus too narrowly on the relation between skill levels and wages, leaving out of account the powerful influence of economic conditions; and second, they take too narrow a view of technology, assuming that the equipment and hardware alone determine what jobs will be like.

The differing economic conditions of the 1960s and the 1980s illustrate the importance of the first factor. If some kinds of factory work were de-skilled by the automation of the 1960s (an arguable assertion), the prosperity, low unemployment rates, and rising real wages of that decade more than compensated most workers. Also, in some manufacturing industries, collective bargaining contributed to higher pay than might have been expected for workers with limited skills or education. By the mid-1980s, by contrast, real wages of production and nonsupervisory workers on private nonagricultural payrolls had been declining for more than a decade. In 1985 hourly earnings of these workers were about 6 percent below their earnings in 1977 (in constant dollars); weekly earnings had dropped 9 percent below the 1977 level, and were about 14 percent below their highest point, in 1972 and 1973. The reasons had less to do with changes in the skill content of jobs, associated with technological change, than with a number of economic and social factors—the entrance of millions of inexperienced young people and women into the job market in the 1970s, the inflation of the late 1970s, the deep recession of the early 1980s, the persistence of unemployment in the mid-1980s at rates above 7 percent, the decline of labor unions, and intense competition from lower wage countries. In this situation, with real wages on the decline and unemployment rates high by historical standards, the effect on wages of de-skilling a large number of jobs might prove considerable.

Also missing in the de-skilling/upgrading argument is the point that technology alone does not determine the nature of jobs. It does not, by itself, raise, lower, or polarize the skills required. While the characteristics of a new technology, and the competitive environment of the firm or industry adopting it, set limits, there is usually room for some latitude in redesigning jobs. In organizing the tasks that remain for human workers to do, managers and engineers (sometimes with worker participation) may have a range of options, from rationalizing jobs—i.e., reducing them to simple, repetitive tasks—to broadening and integrating jobs, that is, including more kinds of tasks in each job and establishing for each a goal that is the logical culmination of the set of tasks.

A wide range of options does not always exist; costs and other constraints are important. Also, it is often difficult to foresee exactly what options there may be with new, unfamiliar technologies. Nonetheless, as examples in the following sections show, different solutions are possible with some jobs; upgrading and deskilling of essentially the same job are occurring in different firms and countries.

OTA's analysis does suggest some commonality in the skills that will be needed in factories, offices, and services such as health care to make effective use of advanced technologies. These skills differ from the ones that many displaced workers possess. Routine mental and physical skills (e.g., those used in operating machines, moving materials, punching keyboards) will be less in demand. More in demand will be good basic competencies in reading and math, a broad understanding of how the individual worker's tasks and job fit with those of others, an aptitude for team work, and an ability to get the feel for, and take responsibility for, the proper functioning of expensive equipment in complex production systems.

Technology and the Range of Job Options

How Technology Displaces Jobs

Even though technology alone does not determine the makeup of jobs, it is a major force in determining the range of possible job options. Its main effects are: 1) to displace tasks previously performed by people; 2) to create new tasks; and 3) to limit, by its inherent features, the ways in which tasks can be allocated to specific jobs.

New technologies can displace the tasks of human workers in several ways. The most obvious way is for a machine to take over a task performed by a worker. Robots that load workpieces into automated machine tools, for example, take the place of the human worker, but the task still exists. Another common form of technological displacement is a change in process or product that eliminates the task. Some plastic parts, for example, need hand finishing to remove flash (excess material) from the finished product. A different molding technique, used for some parts, prevents the flash from forming, thereby eliminating the finishing operation. The task of hand finishing is not automated; it is no longer needed. Tasks may also disappear when technology changes the demand for a product. For example, when hand calculators replaced slide rules, several specialized precision machining and printing tasks disappeared.

Tasks, or parts of jobs, are more commonly displaced than entire jobs; work is restructured to use new technology, in some cases leaving fewer people performing the same amount of work. For example, a law firm may employ five lawyers, all of whom spend part of their days searching for legal references. When the firm introduces a computer to identify sources, the laywers can do more work of other kinds. If four lawyers can handle as many cases with a computer as five could without the computer, one lawyer can be displaced. The computer, however, does not possess the skills of a lawyer. In the same way robots, no matter how adroit they become, do not replicate human workers.

Often, new technologies both displace and create tasks. For example, automatic material-handling equipment displaces the manual task of driving a delivery cart and most of the loading and unloading tasks. At the same time, it requires computer programming, machine monitoring, and maintenance.

The design of technology may limit or expand the options for allocating tasks. The positioning of workstations on an assembly line, for example, limits the tasks that can be assigned to any one person, since a worker cannot perform tasks at two distant stations at the same time. New technology may also broaden options. A case in point is advanced electronic equipment, which allows an airplane pilot to perform navigational tasks. These examples illustrate the fact that many of the features of a new technology which limit or expand options for assigning tasks are designed into the technology. Design choices are not unconstrained. They are limited by physical possibility, scientific understanding, engineering know-how, traditional ways of thinking, and, most significantly, by costs. Even so, the effects of technology on the tasks workers perform arise from the decisions made by people, from the early stages of research, development, and design, to the end point of use of the new equipment or methods in the workplace.[24]

How decisions made in the design stage affect jobs is illustrated by a recent Swedish effort in which workers cooperated with computer scientists to develop a new printing technology. Computerized text entry, typesetting, and layout have made far-reaching changes in the number and quality of jobs for production workers in printing. Making up pages for newspapers was once the province of printers on the shop floor, in the days of lead type. Today it is becoming a computer terminal job. By 1980, the Swedish Graphic Workers Union, representing printers, typographers, lithographers, and other production workers in printing, sought a role in developing software that skilled workers could use as an advanced tool in making layouts.[25] Instead of leaving the technology design solely to vendors and computer scientists, the workers wanted a say in research and development, to support technology that would make use of their skills, create desirable working conditions, and contribute to higher product quality.

With the help of public funding, the union formed a cooperative program with government and business called Project UTOPIA (in Swedish, an acronym for training, technology and products from a skilled worker's perspective). The project developed a computer and software system that allows the operator to visualize on the computer screen both full-page layouts and close-ups of details. This feature gives the operator greater power to design interesting layouts than other computerized layout systems, which do not show the actual page on the screen. According to the workers, an operator who has to "work blind" without seeing how the page will look is less able to create an attractive, varied layout. Another benefit of the union's involvement was that it gave participants a broader understanding of the potential of computer technology in printing.

The labor-management-government cooperation of the UTOPIA project is rare. Even in Norway, where laws guarantee union involvement in technological planning, unions are more likely to wait until new systems are designed and implemented before making a critical assessment. It is nearly always managers, guided by technical experts, who make the major decisions on the design and use of new technology.[26]

People and Machines

There are limits to replacing human labor completely with technology. Three kinds of considerations influence the mix of human beings and technology in producing goods and services: 1) technological constraints: the fact that some tasks cannot be done well, or economically, or at all by mechanical or electronic means; 2) the need for people to design, operate, maintain, and repair technology; and 3) the selection of some tasks for people to perform because the tasks are important to quality of worklife, or tradition, or aesthetics, despite proven abilities of machines to perform those tasks.

In assigning responsibility among humans and machines, engineers and managers often view people as adjuncts, available to do whatever is too complex or too expensive to automate. Some regard people as unpredictable, demanding, and inefficient compared with machines, and see automatic manufacturing as an opportunity to design humans out of the system. People are not so easily dispensable, however. While technical advances have enabled machines to take over some of the work people did in the past—with improvements in productivity and reductions in costs—it is seldom possible to do without human judgment and flexibility.

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[24] For a comparative study of the work-related priorities of engineers and computer systems designers in the United Kingdom, Sweden, and the United States, see: Bo Hedberg and Enid Mumford, "Design of Computer Systems"; and J.C. Taylor, "Job Design Criteria Twenty Years Later," in *Design of Jobs*, 2d ed., L.E. Davis and J.C. Taylor (eds.) (Santa Monica, CA: Goodyear, 1979), pp. 44-53 and 54-62, respectively.

[25] Robert Howard, "UTOPIA: Where Workers Craft New Technology," *Technology Review*, vol. 88, No. 3, 1985, pp. 42-49.

[26] Leslie Schneider, "Technology Bargaining in Norway," *Technology and the Need for New Labor Relations*, Discussion Paper Series, John Fitzgerald Kennedy School of Government, Harvard University, August 1984.

Human skills are rarely directly comparable with those of machines. Descriptions of what people can do as if they were machines (mechanistic models of skill) and descriptions of what machines can do as if they were people (anthropomorphic models of technical performance) fail to capture the great versatility of human labor. A robotic system, for example, may include visual sensors to locate objects and an electronic controller to respond to this information. Yet this system does not begin to match the complexity and adaptability of human perception, thought, and action. People are much better than machines at work requiring judgment, interpretation, and adaptability. When a nail hits a knot, a carpenter can adjust. Current generations of robots cannot. A computerized vision system can spot solder runs on a printed circuit board but cannot interpret X-rays of pipeline welds. Confusion over what people do well and what machines can do well leads to poorly designed jobs and machines.[27]

Automated systems, while they may run with fewer people, still require some people. When computers are integrated with complex systems—in process control, for example—performance of tasks does not become wholly automatic (see box 8A). The same is proving to be true in automated systems for small-lot production.[28]

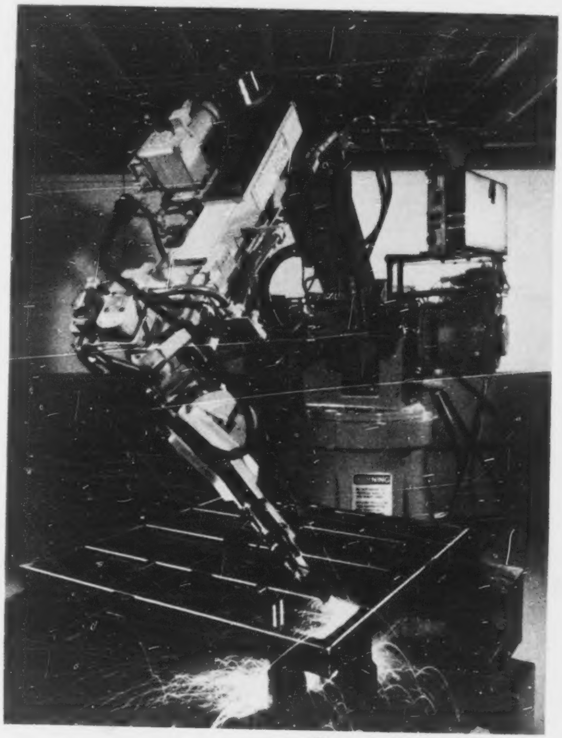

Photo credit: Cincinnati Milacron

Industrial robot welding a computer frame assembly

Automated systems cannot be idiot-proofed. In fact they are likely to be more sensitive than labor-intensive systems; one unexpected occurrence can shut down a highly automated process. Moreover, when heavily stressed, faced with unusual conditions, automated systems may fail in unexpected ways, throwing the decisions back on human operators. All too often, as in the Three Mile Island accident, the people have trouble coping—perhaps because their jobs have been poorly designed.[29] As jobs in automated systems become more routine under normal circumstances and more demand-

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[27] K. Noro and Y. Okada, "Robotization and Human Factors," *Ergonomics*, vol. 26, October 1983, pp. 985-1000; H. McIlvaine Parsons and Greg P. Kearsley, "Robotics and Human Factors: Current Status and Future Prospects," *Human Factors*, vol. 24, October 1982, pp. 535-552; and Warren P. Seering, "Who Said Robots Should Work Like People?" *Technology Review*, vol. 88, April 1985, pp. 59-67.

[28] See, for example: Robin P. Bergstrom, "Taking Stock of FMS . . . Users Speak Up," *Manufacturing Engineering*, vol. 92, March 1984, pp. 48-55; "Roundtable Participants Talk About CIM Myths and Realities, People Aspects and the Future," *Industrial Engineering*, vol. 17, January 1985, pp. 35-51.

[29] For a list of operator limits on automated systems, see Christopher D. Wickens, *Engineering Psychology and Human Performance* (Columbus, OH: Charles E. Merrill Publishing Co., 1984), pp. 490-495. For a discussion of work design issues at Three Mile Island, see Joel A. Fadem, "Automation and Work Design in the United States," *Automation and Work Design*, F. Butera and J.E. Thurman (eds.) (Amsterdam: North Holland, 1984), pp. 647-696.

Box 8A.—The Job of a Machine Tender in Papermaking

Modern papermaking illustrates the relation between people and machines in a highly automated process control system, and the critical role played by humans. Jobs in the paper industry are typical in many ways of an increasing number of computer-assisted jobs. Responsibilities of the paper crew—those directly involved in operating a paper machine—include close interaction with a computer, as well as performance of such traditional tasks as aligning equipment, reading gauges, adjusting valve settings, and repairing machinery.

Papermaking is the conversion of wood pulp—cellulose fibers separated chemically or mechanically from the other components of wood—into paper. At the wet end of a paper machine a layer of prepared pulp is suspended on a metal screen; water is drained from the pulp, and also drawn out by vacuum suction. The drying pulp takes the form of a wide continuous sheet as it progresses to the dry end of the paper machine. A woven belt or felt supports the paper as it passes through heated rollers, which remove additional moisture and bring the paper to the required thickness. An optional last stage gives the paper different surface properties or coatings.

Papermaking is a highly competitive industry, with both foreign and domestic firms vying to achieve ever-increasing efficiencies, including rising labor productivity. Papermill automation, primarily in process control, is one response.[1] In a computerized process control system, machines can monitor, evaluate, and adjust numerous variables such as moisture content, temperature, or machine speed. A central computer can direct the system, or microprocessors can distribute control throughout the operation. The three basic elements in the system are sensors, actuators, and a computer model.[2] Sensors measure key variables, providing a constantly updated status report. Computer software can then compare current values against a model of optimum parameters. If change is required, the computer can send corrections to actuators which then physically alter the process—by opening a valve, for example.

All of this, in principle, can be done automatically. However it is rarely possible to reduce to a simple model the questions of how, how much, and when to adjust the large number of variables involved in papermaking. For this reason, even the most automated systems need human operators to make decisions, based on past experience or training or on the human feedback system known as trial and error. In the automated process control papermaking system, with its combination of people and machines, the crew working directly on the paper machine typically includes five workers. Without process control, a 20-worker crew is the norm.

The work flow in the multistage, continuous process of papermaking is highly integrated. Each stage of the process can directly affect all others. A major difficulty at any stage may force the entire system to shut down. Minor problems must be overcome quickly lest they become major. For example, if paper breaks in the paper machine—not an uncommon event—the paper machine crew must remove the torn sheet and quickly prepare the machine to start up again, to avoid a shutdown. The team approach of the paper crew is essential to the papermaking craft.

At the head of the paper crew is the machine tender, who controls the process computer. By operating a keyboard on a control panel he can adjust the system's operation, based on information presented on visual-display monitors. His duties in the control room include interpreting control charts, doing arithmetical calculations, maintaining logs, and communicating with other members of the crew, verbally or by hand signals, on what needs to be done. The machine tender is responsible not only for spotting problems but anticipating them.

Because the information coming through the computer is not sufficient for reliable operation, the tender's job also includes direct testing and observation, such as inspecting equipment for signs

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[1] Ole Fadum, "Mill-Wide Automation—Do You Really Need It?" *The Proceedings of the Third International Pulp and Paper Process Control Symposium*, Vancouver, B.C., Canada, May 2-4, 1983.

[2] Alfred Z. Spector, "Computer Software for Process Control," *Scientific American*, vol. 251, September 1984, pp. 174-186.

of wear or looking for other potential malfunctions. The tender also has chief responsibility for a variety of manual operations not directed by the computer, including changing filters and aligning equipment. In emergencies, such as malfunctions in the paper machine, the machine tender's ability to diagnose the trouble rapidly, coordinate the crew, and possibly direct activities of other workers as well become crucial. Much of his time, however, is spent in the control room—a haven from the noise, heat, and fumes of the mill floor, and a place for socializing with other crew members when the work load ebbs.

The work of the other crew members also involves traditional blue-collar tasks, requiring dexterity and skill in the use of hand tools. At least one, sometimes more, members of the crew are trained in the machine tender's job so they can substitute if needed. Members are also trained in each other's tasks. Traditionally, crew members were expected to monitor the machine's operation with a combination of skills and art based on experience (e.g., a crew member might taste the pulp to evaluate its acidity). In some automated mills, crew members are expected to keep up these skills, in case the machinery fails.

The machine tender's job was always one of the best in the mill. A worker might spend 25 years in various mill jobs before moving up to tender. In one highly computerized mill, managers required formal training, provided onsite in an initial 20-week intensive course, followed by further training. The initial course was open to all applicants who qualified whether or not they were current employees; at the end of it, candidates for machine tender were chosen primarily on the basis of their training test scores. In selection systems of this kind, on-the-job training still has some value, in preparing the tender for responsibility and giving him a broad understanding of related jobs in the mill. But the abstract character of monitoring and troubleshooting complex equipment puts a premium on classroom instruction.

ing when complex systems malfunction, operators may have more trouble diagnosing system problems in an emergency, just when quick and correct response is vital.

In general, highly automated systems demand greater responsibility by employees and depend more heavily on human judgment and skill than do more traditional systems. Whether the job is that of a nuclear powerplant operator or an air traffic controller, man-machine integration becomes more crucial as the capabilities of the machine expand. One implication is that the distinctions between managers and production workers narrow as the latter take on greater responsibilities.

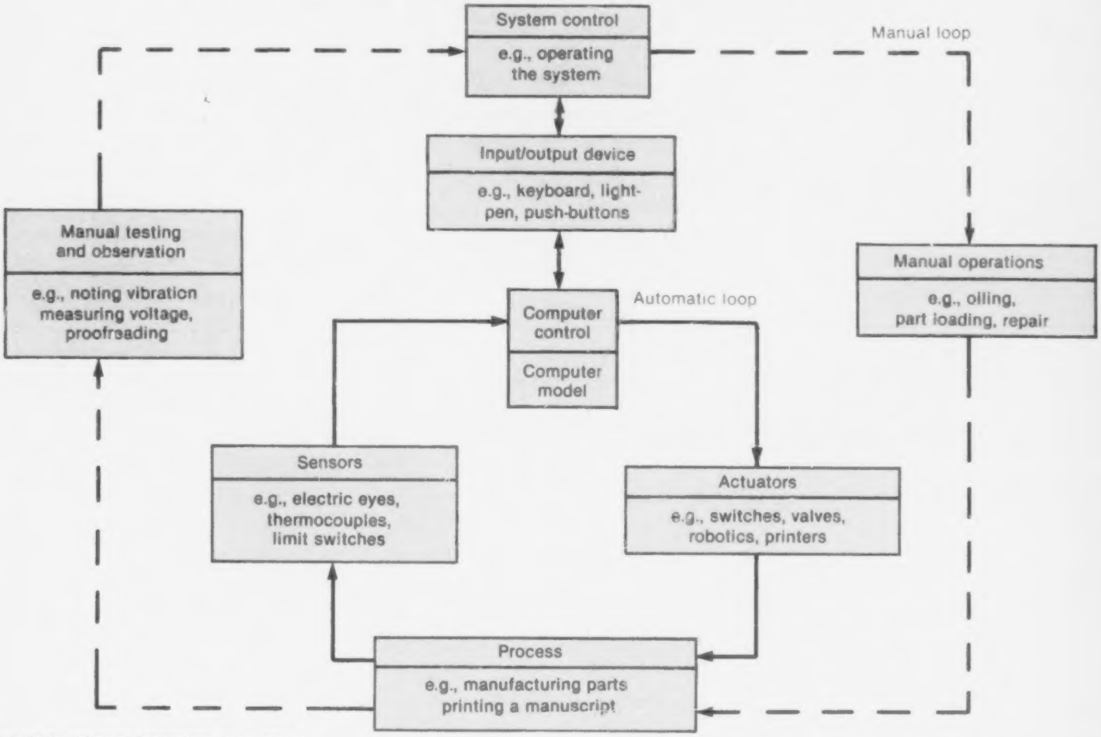
Task and Skills Changes

As new technologies are adopted in the workplace, cognitive and communication tasks will be shared by workers and computers, and people will share tasks of observation and physical manipulation with sensors and mechanical actuators or manipulators. Because some kinds of tasks are more suited to the capabilities of machines than others, jobs made up mostly of such tasks may be vulnerable to displacement.

Figure 8-6 depicts a semiautomatic system in which human workers and machines both perform tasks. Human-operated manual commands and computer commands can both control the work. In the automated loop, the computer model, a collection of algorithms and specifications of acceptable operating conditions, sends directions to actuators. Sensors continuously enter data on changes in the work environment, keeping the computer model current. The manual loop allows worker control of the system through an input-output device to the computer model. People regulate the work process through manual testing and observation, and manipulate it by operations such as part loading or repairs (see box 8A).

As figure 8-6 indicates, the greater the reliance on sensors, actuators, and the computer model, the less the need for the corresponding human tasks. Computer algorithms displace

Figure 8-6.—Control Network for a Semiautomatic System


System control
e.g., operating the system
Manual loop
Input/output device
e.g., keyboard, light-pen, push-buttons
Manual testing and observation
e.g., noting vibration measuring voltage, proofreading
Manual operations
e.g., oiling, part loading, repair
Automatic loop
Computer control
Computer model
Sensors
e.g., electric eyes, thermocouples, limit switches
Actuators
e.g., switches, valves, robotics, printers
Process
e.g., manufacturing parts printing a manuscript

SOURCE: Office of Technology Assessment.

the human tasks of routine organization and transfer of information, and also well-defined computational tasks, such as daily production planning, accounting, and correspondence. Mechanical sensors can take the place of some sensory and perceptual tasks, and mechanical actuators displace tasks requiring manipulative skills.[30]

The riveting of airplane skins illustrates some of the ways in which tasks are assigned to humans and machines with computerized technology (see box 8B for details). Riveting, a fastening task traditionally done with a hand-held riveting gun, can also be performed with a computer-controlled machine. The correct procedures for positioning and driving rivets come both from stored information in the computer and from the operator's knowledge. Electronic sensors and the vigilance of the operator protect the process from poor rivets and machine malfunctions. Many (not all) of the manipulative tasks shift to the riveting machine, but human operators gain some new cognitive tasks, such as avoiding uncorrected program errors, stopping the machine in case of malfunction, and doing minor troubleshooting. Other workers—skilled maintenance people—must be familiar with the machine and knowledgeable about computer and electronic instrumentation.

Hospital technical workers provide another example of changing tasks and changing skill

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[30] See, for example, Stephen G. Peitchinis, *Computer Technology and Employment: Retrospect and Prospect* (New York: St. Martin's Press, 1983), p. 98.

Box 8B.—Numerically Controlled Riveting Machine Operator—Airplanes[1]

Riveting, a semiskilled production job, is important in airplane manufacture, where rivets fasten together aluminum sections of the fuselage and wings. Traditionally the job was performed with a hand-held riveting gun. The use of numerically controlled (NC) riveting machines is common among major aircraft manufacturers today. With the new technology, the skills required for riveting have shifted from primarily manual to more mental and conceptual, although in both the old and new technologies there is a mix of manual and mental skills.

Up until World War II, airplane riveting was done mostly by hand. Workers with hand-held riveting guns inserted rivets according to prepared layouts. This labor-intensive process was expensive and physically demanding. Wrist ailments, hearing loss due to high noise levels, fatigue, and injuries from working in cramped quarters were not uncommon. Stress related to the work sometimes led to fist fights on the shop floor.

Wartime production and a shortage of workers encouraged the development of riveting machines—manually operated at first, and later numerically controlled.[2] These machines improved the quality and consistency of riveted joints and reduced the cost. Hand methods have not been entirely superseded; they are used for about 10 percent of the rivets on a large commercial airplane. Places that are hard to get at where a machine would not fit, small oddly shaped pieces, final assembly points such as joining wings to fuselage, and repairs of bad rivet joints still call for a riveter experienced with a hand-held riveting gun.

Manual (non-NC) riveting machines were the first replacement for the riveting gun, and are still generally used to rivet smaller subassembly pieces of the airplane. Responsibilities of the machine operator include set-up of the machine, operation, quality control, and coordination of work with others involved in the manufacturing process. From his experience as a hand riveter, the operator has gained a familiarity with the size and kind of rivet for each job, which he may need for selecting rivets or for detecting errors. The operator also needs the ability to judge the quality of a riveted joint. Additional training for operating a non-NC machine usually amounts to 2 days of formal training and 1 week of on-the-job training at the machine.

Before each different part and between changes in rivet size or type the machine needs to be set up or adjusted. The operator analyzes the work required, selects the correct rivets and tools (e.g., drills, anvils, hoppers), and makes minor adjustments to the machine, including changes for different rivet sizes. Aluminum parts or subassemblies, usually light enough for the operator to lift and handle, are generally delivered with the rivet positions marked on them. The operator aligns the marks with the target position of the machine and presses a foot pedal to activate the drilling-countersinking-riveting sequence. On some machines, a laser highlights the target area, which adds to the positioning accuracy.

The operator is responsible for checking his own work and may spot problems from earlier stages. For example, if an operator notices that the marked position for riveting a rib deviates from patterns seen in the past, he may question the layout rather than proceeding with riveting—perhaps preventing a costly error. The operator also marks any bad rivets he may make, so they can be corrected later by hand.

For an NC machine, the operator performs the same setup tasks as those for manual riveting machines, plus new tasks. Usually the structures to be riveted are too big for the operator to handle, and are positioned by hydraulic equipment. The operator positions the workpiece correctly relative to the riveting machine, selects and aligns tools, loads the NC tape or disk, and runs a test coupon (two small aluminum sections riveted together to test the machine's operation). With an NC machine,

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[1] Based on an OTA case study at Boeing Commercial Airplane Co., Seattle, WA, February 1985.

[2] For a history of riveting, see: Walter G. Vincenti, "Technological Knowledge Without Science: The Innovation of Flush Riveting in American Airplanes, ca. 1930-ca. 1950," *Technology and Culture*, vol. 25, No. 3, 1984, pp. 540-576.

the operator may be as much as 20 feet away from the rivet site. During riveting the operator must monitor spacing sensors, a television screen which shows upper and lower views of the piece, and the monitor screen on the NC controller. He must be trained to stop operation if necessary and restart the NC program at a corrected position. He may also have to skip over a section of a program known to be faulty but not yet corrected, and return the NC controller to the correct position manually. In addition, malfunctions, normal wear of tools and equipment, and quality of the riveted joint have to be constantly monitored.

With some NC riveting machines, operators must communicate with a co-worker who visually inspects each rivet to be sure it is inserted properly. While the operator remains at the controls, the inspector is physically near the workpiece, often crouching or scanning rivets overhead. Operators and inspectors switch positions during each shift. With more advanced machines, the arduous inspector task is eliminated; the operator can inspect the rivets with improved sensors and closed circuit television.

Communication skills are essential to the job in other ways as well. Changes in specifications, additions to the work flow, and rush jobs find the operator working with several other people on the shop floor. In addition, machine breakdowns and design modifications require working with engineers and maintenance personnel. These social skills, often overlooked, are necessary for all involved to work well together and to manufacture a quality product.

While maintenance technicians tackle the more difficult equipment problems, the NC machine operator is the focal point of the operation. Though similar, each of these large machines is unique. The operator, with time, develops an understanding or feel for the operation of a given machine—its abnormalities, sensitivities, maintenance history. He must communicate and coordinate this understanding with the others responsible for the machine to ensure smooth operation. These include engineers, maintenance workers, planners, foreman, NC programmers, and technicians.

The skill requirements of the NC riveting machine operation are clearly different than those of hand riveting or even non-NC machine riveting. The knowledge gained in hand riveting (e.g., rivet selection, quality inspection) does transfer to the more automated jobs, but there is a major shift from manual to more conceptual skills. The NC operator must deal with complex changes and possible malfunctions which are beyond the realm of hand riveting. He is removed from physical contact with the workpiece, and must have a more abstract mental model of the work. Instead of feeling in his arm the impact of inserting a rivet, he observes it, from 20 feet away, on a television screen.

Perhaps the most telling evidence of the shift away from physical skills is the attitudes of operators. At one aircraft plant, the area containing the NC riveting machines is jokingly called the "rest home." Notably, the area is quiet. Manual rivets are inserted with impact force, while the automated technique squeezes them in with steady pressure. The vibration of the riveting gun, the muscle fatigue, the bending, crouching, and standing required for manual riveting are replaced with an office chair before the controls.

requirements with advances in technology, as described in an OTA contractor report.[31] Medical technologists test blood and other body fluids for a number of factors, including the presence of chemical substances and disease-producing organisms, number and characteristics of white and red blood cells, blood type and clotting time, and the status of the body's immune system. Credentials for medical technologists include a bachelor's degree in biology or chemistry. These workers are expected to decide whether test results are valid, to grasp the significance of patterns of daily test results for individual patients, and to alert physicians to potentially life-threatening conditions. They also need manual skills for laboratory bench work with such equipment as pipettes and bottled reagents.

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[31] Bernard Ingster, Charles P. Hall, Jr., and Arnold I. Silverman, "Effects of New Technology on Skill Requirements of Clinical Laboratory Technologies and Radiologic Technologists," contractor report prepared for the Office of Technology Assessment.

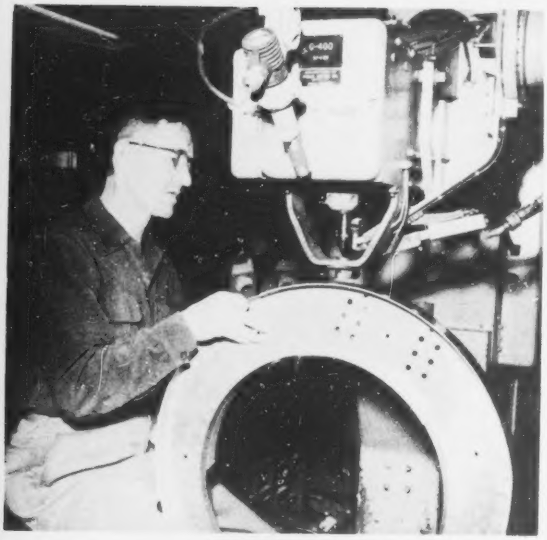

Photo credit: General-Electro Mechanical Corp

Worker operating a riveting machine

In clinical chemical laboratories, where technologists test blood for chemical substances, most of the work is done with fast, automated, computerized equipment. Automation of the work began in the 1950s and has become increasingly more sophisticated. Technologists in modern labs need only type in the test selection on a computer keyboard, load the specimen, and push a button. The equipment can determine whether a sample is out of normal range and redo the test automatically, and can record and transmit results to other workstations. Technologists retain responsibility, however, for validating test results. If they are out of the normal range, and the technologist feels that the process was faulty, he/she must run the test again. Or, the technologist may determine that the tests are a valid indicator of the patient's health. Technologists are also expected to retain their manual skills for occasions when physicans want independent confirmation of an automated test result and, more rarely, in case of emergency failure of the automated equipment. In common with factory workers using automated equipment, these laboratory workers must have enough understanding of the equipment to spot malfunctions and do simple troubleshooting. Table 8-7 summarizes the changing tasks of both clinical lab technologists and radiologic technologists with the introduction of new equipment.

Despite the steady rise in labor productivity of clinical laboratory technologists, employment of medical technologists approximately quadrupled from 1966 to 1982, increasing from 38,000 to 150,000. Exactly comparable data for hospital beds and patients are not available, but the ratio of full-time hospital employees to patients in hospitals rose from 2.24 in 1965 to 3.76 in 1982, and medical technologist jobs were part of that growth. The reason was the rapid introduction of new technologies and services, especially after Medicare and Medicaid laws were passed in 1966. It is expected that budget stringency and cost containment for both Medicare and Medicaid will now sharply curtail the rate of hospital employment growth.[32] Total hospital employment has in fact dropped slightly since 1983. In one of two hospitals studied by OTA's contractor, employment in clinical laboratories dropped slightly from 1979 to 1984, but attrition took care of the reductions; there were no layoffs. In the other hospital, clinical lab employment has remained stable; it may expand, since the hospital is discontinuing some work once performed by an outside commercial laboratory and bringing that work into its own labs.

Changes in skill requirements for radiologic technologists show a different pattern from that of clinical lab technologists, where the emphasis is on further automation of existing diagnostic services. In radiology, the new technologies are linked with significant advances in the physician's diagnostic abilities. With conventional X-rays, the way to visualize different segments of the body is to rotate the patient or the equipment and take several pictures. In the newer technology of computed tomography (CT) the body part is placed within a ring of multiple X-ray sources, which are linked to electronic systems that capture multiple images. Computers process the images and inte-

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[32] Ibid., Section B.

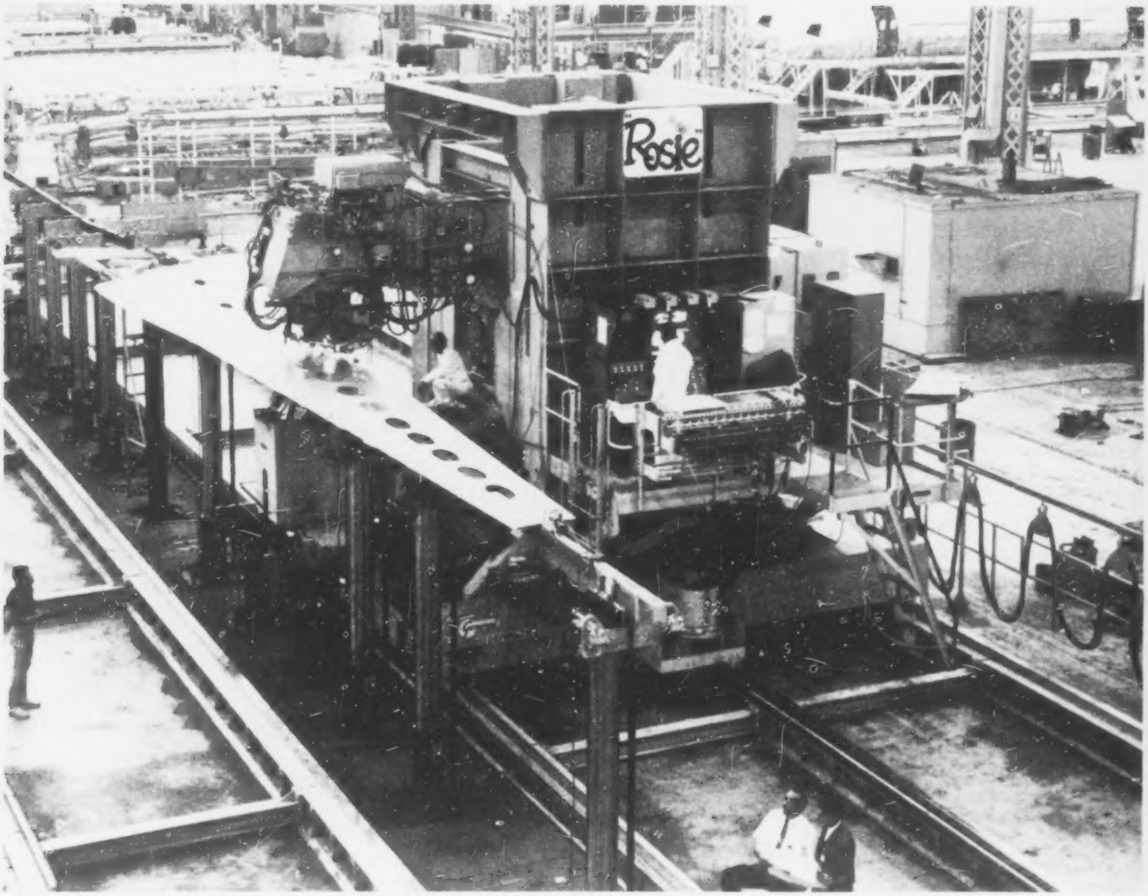

Photo credit: General-Electro Mechanical Corp.

Operation of a numerically controlled riveting machine

grate them for visual display on monitors or film. CT scanners are able to take extremely thin cross-sectional "slices" of the head and body, at different angles, and produce crisper images than the conventional X-rays. CT has been in use for about 10 years.

A still newer technology is magnetic resonance imaging (MR). Like CT, it produces cross-sectional images generated by computer; but in contrast with X-ray technologies, it produces clear images of soft tissues without obstruction by bone. The main component of the technology is a powerful, ring-shaped magnet, which is fitted closely around the head or body part of the patient.

Both CT and MR do something new and different from conventional X-rays; they supplement, not supplant, the older technology. The tasks associated with conventional X-ray are not displaced, but new ones are added (table 8-7). The old and new tasks usually are not performed by the same people, however; CT and MR technologists are usually specialists who have been given further training after qualifying in conventional radiologic techniques. Employment of radiologic technologists is not ex-

Table 8-7.—The Changing Tasks of Medical and Radiologic Technologists

Work tasks	Displaced tasks	Unchanged tasks	Created tasks
Medical technologist:			
Understanding chemical test reactions sufficiently to assess the quality of manual testing processes	X	X	
Having the manipulative skills to perform laboratory bench tests	X	X	
Maintaining quality standards during manual testing	X	X	
Confirming changes during manual testing by visual inspection	X	X	
Performing manual testing according to strictly defined protocols and "self-review" of work	X	X	
Understanding the significance of a pattern of results of daily testing of a patient		X	
Confirming and validating test results		X	
Observing the results of the process being performed to ensure correct protocols are followed		X	
Determining when to inform physicians of a potentially life-threatening situation		X	
Maintaining quality standards during instrument testing			X
Determining if results produced by automatic instruments are valid			X
Understanding the operating systems, protocols, work flow, and maintenance practices for diverse automatic instruments			X
Having the manipulative skills to control automatic equipment			X
Monitoring the information on cathode-ray tubes and test data recorded by automatic equipment			X
Identifying the kinds and probable sources of malfunctions of automatic instruments			X
Radiologic technologist:			
Understanding conventional X-ray procedures, with particular attention to body positioning and film exposure techniques	X	X	
Using good interpersonal skills in working with patients and physicians		X	
Having the manipulative skills in working with equipment and patients		X	
Reviewing of X-ray film to assure that the desired body area has been filmed and that the film quality is as specified by the physician		X	
Determining proper body position and exposure parameters for X-ray imaging of the "target" body area		X	
Deciding whether the target area is filmed as requested		X	
Following highly detailed procedures		X	
Understanding cross-sectional anatomy			X
Understanding the operating characteristics of the computed-tomography (CT) scanner			X
Understanding the operating principles of the magnetic resonance (MR) scanner			X
Understanding how the CT or MR equipment accommodates body positioning and exposures automatically			X
Showing more sensitivity in interpersonal relationships with patients who must be confined for a long period in small areas			X
Reviewing of MR image films that do not show bone structures			X
Determining that the CT or MR equipment is operating correctly			X
Determining whether a cross-sectional anatomy image has been filmed as requested by a physician			X
Identifying the nature of malfunctions in CT or MR equipment			X

SOURCE: Office of Technology Assessment, based on Bernard Ingster, Charles P. Hall, Jr., and Arnold I. Silverman, "Effects of New Technology on Skill Requirements of Clinical Laboratory Technologists and Radiologic Technologists," contractor report prepared for the Office of Technology Assessment, October 1984.

pected to decline, but to continue growing moderately.

CT and MR require rather less skill in positioning the body than conventional X-rays, since they produce their images from multiple sources. They both require understanding of cross-sectional anatomy and the ability to recognize whether the image on a monitor is satisfactory, as well as familiarity with how the new equipment works. In the case of MR, technologists must understand the basic principle of the technology and the power of the magnet; they, as well as physicians and nurses, must be aware of the potentially fatal hazard to a patient with metallic implants in his body. Both CT and MR technologists need interpersonal skills to help put patients at ease during lengthy procedures (up to an hour)—especially in the case of MR, which may require a patient to keep his head immobile in a small, tight container. Like other workers using computerized equipment, MR and CT technologists must be alert to equipment malfunctions. They must know when the trouble is beyond making a few simple adjustments, and when to call in the repair specialist.

Changes in the nature of work in computerized offices have features in common with those of factories and hospital laboratories. A recent study of automation in French banking concluded that workers in computerized systems need to use higher order conceptual skills, to form a mental model of how the system works.[33] The study found that, while automation lessened some of the traditional skill requirements for data entry clerks, it also required new and qualitatively different skills. A grasp of banking and computer operations became more important with automation, and the growing interdependence of parts of the system heightened the need for cooperation among the clerical workers. At first, these qualitative shifts in skill requirements were not recognized. When the French banks originally computerized, managers simplified jobs and reduced training requirements. However, they soon found that the clerks' isolation and lack of understanding of how the system worked were causing errors, lowering productivity, and making customers angry. In response, French banks had to make major investments in retraining clerical workers, particularly in basic computer literacy, the structure of the bank's processing system, and the logic of bank accounting.[34] The unexpected result of computerization was that low-level clerical jobs became more important to maintaining the quality and efficiency of banking operations as a whole.

The analysis of French banking is one of several studies suggesting that individual responsibility, ability to coordinate work with others, and decisionmaking skills increase as both service and manufacturing jobs are automated.[35] New technologies based on computer systems tend to displace routine mental and manual tasks, and in some cases displace tasks requiring more complex skills, such as operation of machine tools. At the same time, they add requirements of human operators for judgment, evaluation, the ability to spot problems and either solve them or call on specialists to do so, and an understanding of how one's own tasks and job fit into the larger picture. A grasp of basic statistical concepts—an understanding of trends and limits—will be needed for many jobs for better quality control. Social skills—ability to communicate readily and work with others as a team—often take on increasing importance.

Many of the general skills needed for working with computerized systems are transferable from one job to another. These skills are provided, at least in part, by a good basic education that teaches quantitative, verbal, reasoning, and social skills. For many displaced workers and adults currently in the labor force, remedial education in reading, simple mathematics, and elementary scientific and practical technical principles may be needed if they are to work effectively with advanced technologies (see ch. 7). In many cases, the new technologies require highly skilled maintenance workers. Workers selected for training in maintenance and repair work are likely to be those with a good basic education. For these workers, a knowledge of secondary school mathematics, electronics, and computers will be valuable assets.

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[33] Paul Adler, "Rethinking the Skill Requirements of New Technologies," Working Paper, Harvard University Graduate School of Business Administration, 1983.

[34] Ibid., p. 24.

[35] F. Butera, "Designing Work in Automated Systems: A Review of the Case Studies," *Automation and Work Design*, F. Butera and J.E. Thurman (eds.) (Amsterdam: North Holland, 1984), pp. 43-105.

Some observers interpret the changes involved with advanced technologies as moving toward simpler, narrower, less-skilled tasks for human workers. In the earlier wave of automation, beginning in the late 1950s, many people expected that the automated factory would require increased skills, more training, and better education of workers. Bright's 1957 case studies of the metalworking, food, and chemical industries indicated that, after a period of heightened skill requirements in the early stages of automation, the level of skills required of operators diminished with the growth of computer control and greater reliability of automated equipment.[36]

Bright also found that automation did not greatly increase the need for skilled maintenance workers. Like operators of the machines, maintenance people might need higher skill levels to debug a first, unique piece of automated equipment, but at a later stage few special skills would be required to maintain the more advanced and reliable equipment. Some analysts expect that computer-based technologies will follow a similar pattern. They argue that after computer programs have been tested and debugged and operations become more stable, the skills required of everyone, from operatives to maintenance workers to engineers, are likely to decline. However, if the pace of change is accelerating, as many analysts believe, then learning periods will recur at shorter intervals.

In any case, computerized technologies will require skills that are qualitatively different from the skills needed to work with older technologies. One recent survey of advanced technologies in manufacturing describes the shift as follows:

> The direction of manufacturing skills changes is from physically involved, manipulative, tactile, "hands on" type of work to that which is conceptual, cognitive, and based on an abstract understanding of the process. Instead of maintaining close physical contact with the product and with the process through touch, sight, sound and smell, the production worker stands aside while the integrated combination of computers and machines proceeds with minimal direct human intervention. In one job of this kind a worker loads a workpiece into a computer-controlled machining center and starts the machine. For the next 7½ hours, while the machine makes the myriad cuts required, the worker merely attends the machine, intervening only once, about 4 hours into the process, to re-orient the part on its fixture . . . The workpiece is large and valuable, as is the machine. A broken tool, a loose fixture, a defect in the workpiece, or a "glitch" in a computer program could cause thousands of dollars of damage in a few seconds. The worker is *monitoring* the process rather than being part of it.[37]

The same study found that the need for skilled maintenance workers is declining as the connection between computer and machine becomes closer. Diagnosis of trouble and prescribed remedies may be provided by a computer located far from the factory.

Some of these examples raise broader issues than whether different kinds of skills are needed for new technologies. They put the question of raised or lowered skill requirements into the context of how jobs are redesigned as part of technological change, and whether job quality is enhanced or degraded. The following section discusses this subject.

Redesigning Jobs as Part of Technological Change

When new technologies are introduced into a factory or office, the ways in which tasks are rearranged into new jobs have a critical influence on the nature of the jobs. The pattern of tasks can determine whether the new jobs are de-skilled or upgraded, whether they contain variety or are narrow and repetitious, whether they involve broader responsibilities or are confined to an isolated aspect of the firm's business, and possibly whether they provide opportunities for growth and advancement to better jobs.

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[36] James R. Bright, "Does Automation Raise Skill Requirements?" *Harvard Business Review*, July-August 1958, pp. 85-98.

[37] Robert T. Lund and John A. Hansen, *Keeping America at Work: Strategies for Employing the New Technologies* (New York: John Wiley & Sons, 1986), pp. 93-94.

As with other aspects of new technology, managers and technical experts make the major decisions on how tasks are to be reorganized into jobs. The primary objective of managers in these decisions is efficiency—minimum cost consistent with constraints such as product design, production volume, capital spending limitations, and enough flexibility to accommodate changes in design or production volume. It is not always simple and obvious, however, what kinds of job design and work organization are most conducive to efficiency. Often, when new equipment is brought in, no one specifically considers the range of options for rearranging jobs; and it may be hard even to foresee all the options. Options that would change the jobs of many people may be rejected because it is easier to stick with established procedures and areas of responsibility. Nor is there any uniform answer for all businesses. Different companies choose different strategies for achieving efficiency, and these choices may in turn lead to differing choices in the design of jobs and organization of work, even with the same equipment. Decisions about job design may also reflect other important factors, such as training and abilities of the work force, national policies on quality of work life, relations with labor unions, and the politics of the workplace.[38] Examples in this section illustrate some of the latitude and some of the constraints in job design. A later section discusses innovative organization of work that some companies are adopting together with technological advances.

With the introduction of numerically controlled (NC) machine tools, for example, new and old tasks may be allocated among jobs in a number of different ways. With traditional machine tools, a machinist operates one machine. His responsibilities include deciding how a part is to be cut, selecting cutting tools and work-holding fixtures, and determining the cutting speed for each workpiece. The job also is likely to include making adjustments during the cutting operation; continually checking for tool wear, vibration, and malfunctions; and measuring the part for accuracy. The finished workpiece is the machinist's responsibility. The use of NC machines alters this traditional set of tasks. Most of the planning (selecting the cutting tools and work-holding fixtures) is taken over by the NC programmer; so is the determination of cutting speed. Monitoring tasks, such as making adjustments and checking for malfunctions, remain for the machine operator, although their character may be changed somewhat. New tasks include programming and operating the NC controls and monitoring more than one machine.

In an analytic review of studies describing how jobs were restructured and work reorganized after the introduction of computerized numerically controlled (CNC) machine tools, Kelley found a wide range of solutions, with no single pattern predominating.[39] The range was from de-skilling, to upgrading of jobs, to a polarization of jobs in which one machine operator took on the new tasks of programming, proofing out (testing the program) and editing, and the rest found their jobs de-skilled.

One study of U.K. and West German plants found that programming tasks were often added to the machinist's job, especially in small-scale operations. Another study of five U.K. plants found that in each case a programmer had exclusive charge of planning, testing, and editing the programs—so exclusive that in two plants the control cabinet for the editing machine was locked, and only programmers and supervisors had the key. A third pattern in U.K. plants was for programmers to have sole charge of all programming functions at the outset, but over time, for operators gradually to assume responsibility for proofing out and editing.

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[38] See, for example, L.E. Davis and J.C. Taylor, "Technology Effects on Job, Work and Organizational Structure: A Contingency View," *Quality of Working Life Volume One: Problems, Prospects and the State of the Art*, L.E. Davis and A.B. Cherns (eds.) (New York: The Free Press, 1975), p. 220-241; David F. Noble, *Forces of Production: A Social History of Industrial Automation* (New York: Knopf, 1984); Harley Shaiken, *Work Transformed: Automation and Labor in the Computer Age* (New York: Holt, Rinehart & Winston, 1984).

[39] Maryellen R. Kelley, "Programmable Automation and Production Workers' Skills: An International Comparison of Management Practices," Working Paper WP 86-002 (Boston: College of Management, University of Massachusetts at Boston, October 1985).

According to Kelley's analysis, job redesign varied in U.S. plants. Analyzing four of Shaiken's case studies of shops where CNC machine tools were used, she concluded that in one, machinist jobs were definitely de-skilled: here, operators were not allowed to change the program or perform any major setup tasks.[40] In another case, a modest size plant specializing in small-batch production, CNC operators did not create programs, but set up their own machines, and also proofed out programs. In the latter capacity, the operators kept some informal control over the technology by offering suggestions to the programmer. In the other two plants, blue-collar workers created, proofed out, and edited CNC programs—but in both these cases only one worker wrote programs (in one plant, a CNC lathe operator, and in the other, a machine repairer/millwright). In one of these plants, some of the operators set up their own machines and did some proofing out and editing of programs. Kelley's own observations at another two U.S. plants showed similar variation: in one, machinist jobs were definitely de-skilled, with no responsibility for programming or setups. In the other, operators were expected to fine-tune the programs.

Studies of how automated flexible manufacturing systems (FMSs) have been managed in different countries illustrate the range of choices in designing jobs around a more complex advanced technology. They also shed some light on the factors, besides those directly related to efficiency, that influence the choices.[41] One study of FMS in three countries (the United States, Japan, and West Germany) found that strategies of firms differed by country, with West German firms strongly emphasizing flexibility, U.S. firms giving higher labor productivity top priority, and the Japanese combining emphasis on quality improvement with both flexibility and higher labor productivity.[42] As the firms' strategic goals differed, so did the definition of jobs and organization of work.

An FMS is a production unit made up of semi-independent workstations, connected by automated material handling systems and controlled by computer, which is designed to manufacture different kinds of parts in relatively small batches. The system typically includes NC machining centers, loading stations, and robots or conveyors to move materials; it may also have other workstations such as automatic inspection devices. FMS units are frequently used to make parts for automotive equipment—e.g., transmission case and clutch housings for tractors, or turbine engine components for military tanks; but the FMS can also be adapted to manufacture of robots or NC machine tools, as in the famous Fanuc Ltd. factory in Japan, where machine tools operate at night with no one on the machining floor and only one worker in a control room. When designed and used appropriately, the FMS offers two major advantages: 1) the capacity for nearly full-time use of expensive NC machine tools; and 2) the ability to produce small batches of parts or products economically, because setup costs are minimal for later batches once a first batch has been programmed and produced. These two qualities of high utilization of machines and flexibility are not altogether consistent; one may have to be sacrificed to some degree to the other.

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[40] Kelley analyzed four case studies, for which descriptions of the organization of machining work were provided, from H. Shaiken, S. Kuhn, and S. Herzenberg, "Case Studies on the Introduction of Programmable Automation in Manufacturing," vol. II, part A in U.S. Congress, Office of Technology Assessment, *Computerized Manufacturing Automation*, op. cit.

[41] See for example, T. Martin (ed.), *Design of Work in Automated Manufacturing Systems*, Proceedings of the International Federation of Automatic Control Workshop, Karlsruhe, Federal Republic of Germany, November 1983 (New York: Pergamon Press, 1984), including A. Alioth, "Flexible Automation and Job Design in Manufacturing Systems: Conclusions From a Visit to Japan," I. Asendorf and Schultz-Wild, "Work Organization and Training in a Flexible Manufacturing System—An Alternative Approach," and A. D'Iribarne and B. Lutz, "Work Organization in Flexible Manufacturing Systems—First Findings From International Comparisons"; see also Ramchandran Jaikumar, "Flexible Manufacturing Systems: A Managerial Perspective," Working Paper 1-784-078, Harvard Business School, Division of Research, 1984.

[42] Jaikumar, op. cit.; Alioth in Martin, op. cit.; D'Iribarne and Lutz, op. cit.

Jaikumar's exploratory survey examined about 70 percent of the systems operating in the world in 1981, with closest attention to the 26 FMS installations then operating in the United States. (There are currently about 50 FMS installations in the United States.) The study concluded that the systems were most flexible—in the sense of adapting quickly to variations in products and volume—in West Germany. The number of parts made in German FMS units ranged from 50 to 200, with a mean of 85. In the United States, the average number of parts made per installation was 8, and in Japan, about 30.

In the United States, Jaikumar's study found that FMS was usually managed as a project with a beginning and an end, not as a continuing process. A team of experts, generally provided by the vendor, installed the system. After a debugging period when engineers and programmers solved software and production problems, further changes tended to be minimal. The goal in most installations was maximum use of the machines with little downtime and high labor productivity; job design featured routine, repeatable tasks. Typically, the machines did not require the skills of master machinists but could be run by less skilled operators, whose duties included changing hydraulic fluid, oiling machinery, changing parts such as drill bits, checking gauges, using the computer terminal for routine checks, and making simple diagnoses when something went wrong. Electrical and mechanical maintenance people were trained to follow a disciplined set of procedures with little deviation from the manual.

Flexibility in the German systems appears to depend greatly on the interaction between man and machine. The German FMS units are usually run with a small crew of highly skilled workers who received special training in all aspects of FMS tasks, including basics of NC control, NC-machine and robot programming, detection of faults, and work scheduling. These crews work two shifts; for the third shift, less-skilled workers only monitor the machines. The quality brought to the system by the highly skilled human workers is versatility and ability to solve problems. Using a rather general software structure, they make adjustments based on their own knowledge which is "idiosyncratic, not perfectly reproducible, and not transferable."[43]

The Japanese firms typically pursue a strategy of using FMS units both for improving quality and for gaining the flexibility to schedule short-term variations in products and volume. (In addition, as shown by the unmanned operation of night shifts in FMS units, the Japanese also apparently aim both for higher labor productivity and for a demonstration of their technical prowess.) The design of jobs is consistent with these combined goals. Japanese FMS units have two classes of workers: about five highly qualified operators in each unit doing controlling tasks, and one or two less skilled workers whose tasks are feeding and taking off parts. Operators take part in creating software for the systems, evaluating it from a practical point of view as engineers develop it—the two often working alongside each other on the factory floor. This system gives the operator enough understanding of the program that he can make corrections or adjustments during production. To qualify for an operator position, workers need a good education, which they now get in Japan's public high schools. Because of the educational requirements, FMS operators are mostly young people recently out of school. Older machinists, trained through apprenticeship to work on conventional machine tools, are rarely retrained for the NC centers in FMS units.

Several factors have apparently affected the choice of strategies and job design in the early installation of FMSs in these different countries. For example, German national policy supports projects to improve the quality of work life; a pioneer FMS project in West Germany, installed in an automotive parts plant of a large manufacturing company, was sponsored by the German Ministry for Research and Technology. Integral to the project was a nonhierarchical organization of work using a skilled, versatile crew. Besides government support, the project benefited from an ample supply of skilled production workers, the product of West Germany's highly developed apprenticeship and industrial training system. Whether such a system is adaptable to other countries is an open question; indeed whether it will prove profitable in West Germany is uncertain.

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[43] Jaikumar, op. cit., p. 32.

Japan's use of FMS also reflects its national institutions and traditions. The rigorous technical and scientific education offered in public schools produces well-qualified workers prepared to learn and use high-level skills in FMSs. A relatively broad definition of jobs is also typical of the practice in many Japanese manufacturing firms. In the United States, the tradition of designing factory jobs with narrow, strictly defined tasks is long-standing. The American version of early FMS installations found in Jaikumar's exploratory study was in this tradition.

Management decisions about the redesign of jobs as new equipment is brought in can have decisive effects on job quality. For example, a computerized system to handle customer requests for telephone repair caused job dissatisfaction for the clerks who operated it.[44] The management goal was to speed operations and reduce the number of clerks needed to take customer requests and dispatch maintenance crews. Under the old system, clerks in local repair centers received requests from customers, recorded details on a form, initiated a manual test of the customer's telephone service, made a tentative date for the repair and handed the form to the supervisor of the repair crew. In the new computerized system, clerks were relocated to a few answering centers. They no longer communicated directly with the repair crew, but entered information from customers' requests by keyboard into a centralized computer system. The computer instantaneously dispatched the data to the appropriate repair center and at the same time started an automatic check of the customer's service.

The new system was not only unpopular with workers but had some unexpected bad effects on performance. The clerks worried about job security and were dissatisfied with the boring nature of the work (mostly data entry), the physical confinement, and the loss of personal contact with customers and repair workers. Performance suffered from errors and delays because most of the clerks were inexperienced with keyboards, and had not been adequately retrained. The physical separation of answering clerks and repair crews led to jurisdictional disputes, and also to a loss of responsiveness to customers' individual needs. Reacting against the new system, some employees resorted to tactics that undermined it. At one busy repair center, workers discovered that an idiosyncrasy in the computer program allowed them to erase the record of a customer's call—which they proceeded to do at the end of their shift, giving the next shift a clean slate and also frustrating customers who never got a reply to their service calls.

In other cases, managers have designed more interesting, responsible jobs around new technologies—usually because they expect better employee performance and greater overall efficiency as a result. For example, in the letter of credit department of the First National Bank of Boston, one person at a computer terminal can now review documents, create a file, send a letter, and authorize payment. This series of jobs was formerly performed by a chain of clerks. Under the new system, wages in this section of the bank have been raised, and the position is "sometimes a way station in the officer-training program."[45]

Shenandoah Life in Virginia was able to streamline operations with the use of a new computer system—but only after a period of using the computer less effectively.[46] At first, the routine operation of converting a customer's multiple insurance policies into one universal policy was organized assembly-line fashion. Even with the computer, it took 32 people in three departments 27 days to complete the process. With a decision to organize the operation differently, six team members participated in designing their own office layout, salary system, and the work within their team. The new organization, coupled with the new computer systems handled a 13-percent increase in business without additional employees, service complaints and errors declined.

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[44] Trevor A. Williams, "Technological Innovation and Futures of Work Organization: A Choice of Social Design Principles," *Technological Forecasting and Social Change*, vol. 24, 1983, pp. 79-90.

[45] Bob Kuttner, "The Declining Middle," *The Atlantic Monthly*, July 1983, p. 64.

[46] John B. Myers, "Making Organizations Adaptive to Change: Eliminating Bureaucracy at Shenandoah Life," *National Productivity Review*, Spring 1985, pp. 131-138.

Human factors are a constraint on the ability of management to upgrade or downgrade jobs. For example, reorganizing work may involve trespassing on traditional turf within organizations, and encounter resistance. Quality of work and productivity may ultimately decline if individual judgment is removed from work. If a software package controls all decisions, workers may be less willing to spot and correct errors, try more effective approaches, or aim for higher quality.[47] Lack of appropriate skills in the labor force can also limit organizational choices.

The examples in this section indicate that the decisions made in task allocation can affect the occupational mix in the work environment, the skill level and scope of particular jobs, and the degree of training required for particular jobs. How tasks are reassigned to jobs and workers as new technology is introduced has important implications both for the skill requirements of jobs and for retraining needs.

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[47] Shoshana Zuboff, "New Worlds of Computer-Mediated Work," *Harvard Business Review*, September/October 1982, p. 147.

TECHNOLOGY AND THE ORGANIZATION OF WORK

In any business, things run like clockwork only some of the time. Other times, parts of the system threaten to go out of control. Factories of almost any type are complex systems, often chaotic and messy. For instance, at any particular time a job shop producing components and assemblies to order will have a certain number of jobs in process. The lot sizes will differ, as will the required materials. In addition, the shop may have a queue of jobs waiting to enter the process flow. It will have a certain stock of machine tools and production equipment, with partially overlapping capabilities. Machinery and equipment that in principle can be assigned a given job will produce parts that are qualitatively different (e.g., a milled surface versus one produced by a shaper or a surface grinder). Operating costs will differ depending on the equipment used. More highly skilled operators may be needed for some machines and for some tasks than for others. The shop can subcontract work, and may have to for specialized operations such as plating or high-quality welding. Add to these factors such imponderables as machine breakdowns and late deliveries of materials and supplies; the result is a factory of some complexity.

One response to this complexity is to break down jobs into simple, narrow clusters of tasks, and to attempt to keep the potential for human error to a minimum. Work is arranged so that each person need learn and perform only simple tasks such as installing a taillight lens on a car, monitoring the dials on a control panel, or loading a program into an automated machining center.[48] How these tasks are to be accomplished—e.g., whether to use red lighting for the dials—becomes the job of the expert, commonly an engineer or industrial psychologist. The same building block approach is used to organize the work of the whole enterprise. Departments organized by specialized activity take responsibility only for their own functions (e.g., drilling, grinding, heat treatment, painting and finishing, materials handling, shipping, maintenance, and repair). One group of people designs and develops the product. Another group lays out factories and specifies the manufacturing operations. A third group supervises production employees.

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[48] See S.A. Konz, *Work Design* (Columbus, OH: Grid Publishing, 1979); B.W. Niebel, *Motion and Time Study*, 7th ed. (Homewood, IL: Irwin, 1982); A. Chapanis, *Man-Machine Engineering* (Belmont, CA: Wadsworth, 1965).

Despite its appeal of simplicity and order, this approach may not lead to minimum cost or to maximum productivity and efficiency. Even assuming that simplifying jobs makes for greater efficiency (an assumption that has proven untrue in some enterprises), maximum efficiency in individual tasks or jobs, or in subsystems in isolation, need not result in an optimum for the system as a whole.

Different forms of work organization—where jobs include a variety of tasks and call on a broader repertory of skills, worker groups have more responsibility, and work is organized around the product rather than in specialized departments and subsystems—have been advocated as both improving worklife and leading to greater productive efficiency. In what circumstances new forms of work organization can satisfy both these objectives is not clear. Often the objectives of job satisfaction and organizational efficiency are compatible, but not always and not necessarily.

The benefits of new forms of work organization may be hard to trace. Most companies, when they introduce such systems, do so to improve efficiency, defined broadly. However, companies that have adopted them, and consider them successful, usually do not reveal details, for competitive reasons. Thus, quantitative information on efficiency improvements is difficult to obtain.

There is a another reason as well for the lack of concrete data on benefits of new organizational design. For substantial departures from past practices, conventional accounting measures may not capture the full range of benefits. Even in cases that seem on the surface straightforward, such as improved inventory control, direct cost reductions give only part of the picture. For example, in the Japanese companies that have pioneered minimum inventory systems, part of the benefit is indirect: reducing inventory to low levels exposes bottlenecks elsewhere in the system. Minimum inventory becomes a tool for improving system performance, but cost accounting seldom captures such benefits.

In general, evidence that participative systems of work organization help to make firms more productive is fragmentary and anecdotal. Nonetheless, the fact that an increasing number of firms, from steel mills to agricultural chemical companies, are adopting these systems suggests that they are improving productivity either directly or indirectly. Another possibility is that some advanced technologies may be especially suited to work organization that stresses individual responsibility, flexibility, and multiple skills.

Methods of organizing work are changing in many cases to fully exploit new technologies. Many foreign and domestic firms are experimenting with the organization of work with goals of reducing costs, gaining flexibility to meet changing market conditions, exploring new products and services, and improving the quality of worklife. A new model of production systems seems to be emerging in the United States and in other advanced industrial nations. It is based on the idea of integrated production systems, with integration entailing substantial use of computers to tie together manufacturing operations, link manufacturing with design, and more closely couple both these activities with other corporate functions.[49] But

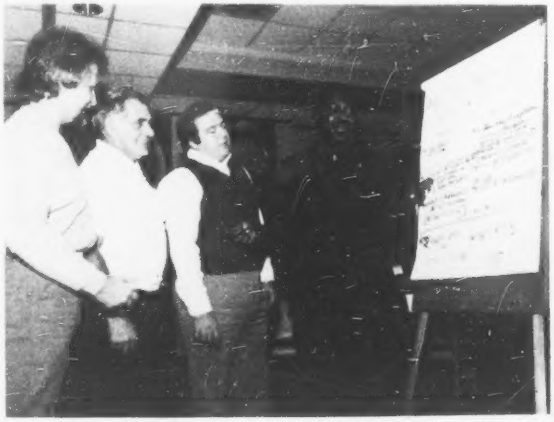

Photo credit: LTV Steel Co.

Employee involvement group'

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[49] See, for example, U.S. Congress, Office of Technology Assessment, *Computerized Manufacturing Automation: Employment, Education, and the Workplace* op. cit., ch. 3.

there is more to the idea of integration than technology. It includes the social system of the factory as well.

New-Model Organization of Work

Emerging forms of work organization in advanced industrial nations tend to share common characteristics, described below:

- *Production jobs are defined somewhat more broadly than in traditional organizations.* Work groups often share responsibility for a number of tasks, with individuals learning several jobs and rotating among them. Individual workers perform more tasks, and more varied tasks, and preassembly or subassembly may be integrated into final assembly. Production workers may also have greater responsibility for and control over materials handling, machine setup, maintenance and repair of equipment, quality control, and even production scheduling.
- *Companies tend to provide more training.* Even production workers normally classed as unskilled or semiskilled are getting more training. On-the-job training has generally proven adequate for many programs of job expansion or job rotation, broader skills coming with broader experience. Quality circles[50] and other group activities can also become training venues. Companies introducing work groups have sometimes chosen to provide training in social skills.

  Off-site training for production workers has been relatively rare in the United States, except for remedial education or training for jobs that incorporate tasks traditionally viewed as the province of skilled workers (e.g., troubleshooting production equipment).
- *Training is intended in part to acquaint employees with corporate goals and to enhance motivation, sense of belonging, and commitment to those goals.* Typically, companies show employees how their jobs contribute to the firm's end products. The employees are encouraged to view themselves as participating, for example, in the production of completed automobiles rather than merely in installing bumpers. ("I help build Honda Accords," rather than "I put bumpers on Hondas.") Some firms that have moved to new-model work organizations provide training that covers the function, design, and marketing of their products. Sometimes they include such topics as manufacturing methods, quality assurance, and ergonomics.[51] A few companies have begun to give employees "management information" on profitability or long-range planning.
- *Management may allocate to groups of workers some or all of the responsibilities formerly vested in foremen and first-line supervisors.* Workers may have limited control over the pace of work, job methods, and working conditions, and they may be responsible for quality control and for coordinating work within groups or departments. Such groups commonly allocate tasks among their members.

  As the group takes over responsibility for controlling absenteeism, for ensuring quality, or for allocating work, the foreman's role may shift to that of facilitator and communication channel between the group and higher management. Often, the ratio of foremen to production workers declines. Many foremen with experience in traditional organizations have a hard time adapting to such changes, and careful selection or retraining of foremen often proves necessary. Some companies have chosen to eliminate foremen and first-line supervisors entirely.

  Giving supervisory control to work groups can heighten the stress for some people. Among the causes are competition both within and among groups—the same forces that some managers look to for greater productivity. Work groups often have some control over their membership, perhaps veto power over new employees. Sometimes, new employees begin with probationary periods. People who do not fit in may find themselves not only uncomfortable, but out of a job. Thus, work groups have potential inequities and abuses that few companies have yet acknowledged.

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[50] Quality circles usually consist of a group of workers meeting regularly to discuss product quality, process improvements, and related topics.

[51] Ergonomics and human factors engineering are closely related terms applied to the design of machinery and equipment so that it will be easy, safe, and efficient for people to use.

- *Selection criteria for new employees may weigh motivational and attitudinal factors more heavily than credentials or past experience.* Social skills may also get new emphasis. Some American firms have adopted multiple levels of screening, with aptitude and perhaps psychological tests followed by interviewing. The interviews may involve prospective peers as well as supervisors and personnel officers. Rather than concentrating solely on preexisting skills, such screening procedures often aim at finding people who will fit into the system—at managerial levels as well as on the factory floor.
- *Pay scales tend to reflect the skills an employee has acquired (the jobs he or she has mastered), the performance of the work group, or both.* In addition to meeting objective standards such as written tests, a person seeking a pay-for-skills increment may have to be informally passed on by other group members, as well as by supervisors. Some companies are replacing individual incentive pay with group incentive plans, so called payment-for-results. Incentives or bonus plans may depend on product quality as well as output. Group-based incentives create new pressures on individuals. Where the spread in performance within a group is substantial, those viewed—rightly or wrongly—as laggards may find their situation untenable.
- *Managers may grant production workers a say in some of the decisions concerning new equipment and procedures, as well as day-to-day operations.* Typically, participation takes the form of group meetings among representatives of the production employees and the company's technical and managerial staff. When a new plant is laid out, the designers may draw on the experience of employees in the firm's existing factories. However, production workers have seldom exercised control over major design decisions—those that shape the system.
- *Companies may replace their existing, compartmentalized organization of work with one that is centered on the product.* People may identify more readily with a department that makes a complete product rather than a piece of one; thus product-centered organization helps engender employee motivation and commitment. Another goal of "product-centered organization" is to create a relatively direct and natural flow between the input and the output of the system. In many cases, organizing by product rather than by function also helps to minimize work-in-process inventories, cuts the elapsed time for producing to order, and improves equipment utilization.

Although no census exists, several hundred plants having characteristics described above are probably operating in the United States.[52] For example, General Motors (GM) is experimenting with alternative work organizations at some of its most automated plants, including the Buick City complex in Flint, Michigan, and the New United Motor Manufacturing, Inc., joint venture with Toyota in Fremont, California. Team assignments are replacing tightly defined job classifications, and production workers are assuming greater responsibility for scheduling and product quality. More far-reaching changes are planned for GM's Saturn project in Spring Hill, Tennessee. GM and the United Auto Workers have developed an approach that includes relaxed work rules, consensus decisions on pay and benefits, and a union voice in strategic planning. To prepare workers for wider responsibilities, GM will provide training in production skills, decision-making, and business methods. For the Saturn project, GM has designed a totally new car, more suited than current designs to automated manufacture.

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[52] A few years ago, the Work in America Institute estimated that perhaps a hundred American firms had instituted self-managing work teams, in some cases at several plants. See *Productivity Through Work Innovations: A Work in America Institute Policy Study* (New York: Pergamon Press, 1982), p. 35. The same study estimated that about 500 U.S. companies had instituted bonus or gain-sharing programs such as Scanlon plans. Also see the *Resource Guide to Labor-Management Cooperation* (Washington, DC: U.S. Department of Labor, October 1983).

Service companies as well as factories can be organized in innovative ways. For example, some banks formerly centered around huge data-processing departments have switched to smaller departments specializing by type of customer (e.g., retailers) or type of transaction (e.g., currency exchange). When a single department provides most or all of the services a given client needs, the bank's employees tend to be more responsive, and the system becomes more intelligible to the customer.[53]

With the continued development of advanced production systems, the adoption of new-model organization of work may expand. Future generations of factories will be more highly automated, with distributed computing a primary tool for achieving greater integration. Although highly automated systems may need fewer employees, those employees will carry heavier responsibilities and need different skills than blue-, grey-, or white-collar employees in older factories. As pointed out earlier, automated systems cannot be idiot-proofed; indeed they tend to be more sensitive, less robust than labor-intensive systems. Thus, production workers may assume some responsibilities similar to those of supervisors and managers.

One implication of these changes is that employee control on the factory floor may gradually expand. At present, organized labor is often ambivalent about comprehensive redesign of factory systems, including elements such as quality circles. Unions have traditionally advocated detailed descriptions of jobs and strict demarcation between one job and another, and some labor leaders see these work rules as protective of jobs and pay. Others may believe that organizational redesign could provide more satisfying jobs, but are wary because job design and quality circles have been used as tools for keeping out unions. In general, labor has had little to say about reorganization of work around new technologies, although technical experts sometimes solicit the opinions and advice of shop floor workers, or committees representing blue-collar workers may be consulted. But with increasing responsibilities, operators of integrated, expensive, and sensitive technical systems may come to exercise more influence.

Another possible development is that barriers will come down within management. Product and production departments, with managers on the same level in the organization, will have to work together, much as production and quality control functions have already been integrated in new-model factories. Products will have to be designed for efficiency in manufacturing. This requires not only that product engineers work effectively with manufacturing engineers, but that technical staffs work effectively with production employees—learning from them during the design stage and helping them learn to produce the firm's goods or services efficiently and competitively.

Examples of New-Model Plants

A number of American and European countries have successfully adopted the model of work organization outlined above, and some of the same principles are at least implicit in Japanese companies. A Shell Canada chemical plant at Sarnia, Ontario, shows how the principles were applied in a technologically advanced continuous process manufacturing facility.[54] Shell Canada's highly efficient polypropylene and isopropyl alcohol plant started up in 1979 after 4 years of planning and a $200 million investment. The plant operates 24 hours a day, 7 days a week, with a staff of 210 people. All of its operators have been trained in equipment maintenance, quality control, scheduling, and safety as well as in process operations. (A team of journeyman craftsmen do the more complicated repair jobs.) Training in multiple skills, marked reduction of distinctions among workers, and a high degree of self-regulation are key features of the plant's operation. There are no job classifications for operators (termed shift team members). The pay structure rewards acquisition of new skills and allows all team members to reach the top rate.

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[53] For an example, see R.W. Walters, "The Citibank Project: Improving Productivity Through Work Redesign," *The Innovative Organization: Productivity Programs in Action*, R. Zager and M.P. Rosow (ed.) (New York: Pergamon Press, 1982), p. 109.

[54] Information provided by Joel Fadem, Institute of Industrial Relations, University of California, Los Angeles, under contract with OTA; L.E. Davis and C.S. Sullivan, "A Labour-Management Contract and Quality of Working Life," *Journal of Occupational Behaviour*, vol. 1, 1980, pp. 29-41; Norm Halpern, "Novel Organization Working at Shell Canada Facility," *Oil and Gas Journal*, Mar. 25, 1985, pp. 88-93.

The design team responsible for Shell Sarnia considered technical and human factors together from the start; representatives of the union (the Energy and Atomic Workers of Canada, formerly the Oil, Chemical, and Atomic Workers Union) were active participants. The team made important changes in the design originally proposed by the company's technical specialists, often in the direction of greater responsibility and control by operators. Studies of other highly automated chemical plants of the same type showed that the plants were often out of operation; the number of variables in the conversion process is very large, many causal relationships are poorly understood, and the final product may not conform to specifications. In a closed loop operation without human intervention, the process may have to be shut down while adjustments are made. At Sarnia, the computer system gives operators the information they need to fine-tune the chemical process and respond quickly to malfunctions, without having to shut down.

The Shell Sarnia system does not run on automatic pilot. To keep it working smoothly requires continuous training in technical and social skills. The results, from both the management and labor points of view, appear to be worth it. Quality control is reported to be excellent, throughput and on-stream time substantially above average, and absenteeism the lowest in any Shell Canada plant. In more than 6 years since the plant started up, only 11 formal grievances were filed—none after the first 3½ years. This compares with 150 grievances in the neighboring Shell refinery during the same period. The Sarnia experience has prompted Shell Canada to use a similar organization of work in several other facilities, including a new $1.4 billion oil refinery and styrene-monomer complex in Edmonton, Alberta.[55]

Rohm & Haas Bayport, Inc., a batch process plant near Houston that makes two lines of specialty chemical products, demonstrates a similar approach.[56] Startup operations at the Bayport plant began in 1982 with a line of specialty monomers. Production of an herbicide called Blazer began several months later.

Bayport employs about 110 people. Its production technology is conventional but its work organization differs markedly from that in other Rohm & Haas facilities, particularly the jobs of the 52 semiskilled production technicians—28 workers on one product line, 24 on the other. The plant manager, a veteran Rohm & Haas employee and the driving force behind the Bayport organization, stresses open communications and a nonbureaucratic management style. Organization of work at Bayport embodies the following elements:

- multiskilled technicians, each trained in five different jobs (most with no prior experience in the chemical industry);
- pay-for-skills through a ladder (as a technician masters each of the five jobs in turn, his or her pay rises);
- no use of shift foremen; and
- product-centered organization, with clear lines of responsibility.

Many of the work system features also extend to the secretarial and clerical staff. Technicians are carefully selected to fit the system. Rohm & Haas uses three levels of screening: 1) aptitude tests given by the Texas Employment Commission; 2) structured interviews carried out by Bayport managers; and 3) interviews by present technicians. The third level of screening was added after half of the first group of technicians left or were discharged during plant startup. Current technicians now have veto power over new hiring and can also force the firing of someone who does not fit in. The plant manager chose most of the original management team himself; today, his immediate subordinates would screen new candidates for managerial openings just as the technicians screen their prospective peers.

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[55] Halpern, op. cit., p. 93.

[56] Based on OTA interviews conducted in February 1984, a telephone interview conducted in November 1985; and R.D. Gilbert, "What Do You Know About Participative Management?" *Chemical Engineering*, Apr. 1, 1985.

Performance evaluations are carried out every 6 months. Group meetings are part of the process, with peer ratings being a major factor in climbing the pay-for-skills ladder. If a technician fails an evaluation, he or she must devise a plan for passing within a specificed time. The extensive screening of potential employees helped to keep worker turnover to 10 percent. While the technicians are all young (under 40), they are far from homogeneous, including both blacks and women.

So far, the new work organization seems to have been effective. All parties express a high level of satisfaction. The principal saving in direct costs has come from cutting out some of the supervisory labor of foremen. Extra costs have been associated with training technicians for multiple jobs.

Recently, the demand for Bayport's herbicide Blazer has dropped off, due to falling farm prices and incomes. Originally, the plant used contract workers to maintain equipment. To avoid laying off its own workers, Bayport has begun to train employees in maintenance, starting with a group of 12 workers and aiming to train 36 eventually. The full-time training course takes 4½ months to complete, and is provided by staff engineers and the local community college; some of the instruction is by means of videotape. Once trained, the workers will add maintenance tasks to their duties.

Volvo's automobile assembly plant in Kalmar, Sweden, has become known around the world for its group-based assembly processes and unusual layout.[57] Much of the impetus for the plant design came from the problem of high rates of absenteeism and turnover which Volvo, in common with many Swedish companies, experienced in the late 1960s. When Volvo set out to design a new factory in the early 1970s, increased efficiency was not the primary goal; rather the objective was to improve employee satisfaction and motivation without directly sacrificing productivity. The company hired experts to interview 1,000 current employees. The survey results guided the architects and engineers, who also drew on the advice of two consultative groups, one that included technicians and foremen and another that included union representatives, safety officers, and specialists in occupational medicine and ergonomics.

The Kalmar factory is unlike other automobile assembly plants. It is light, spacious, and quiet, and its star-shaped form gives each work group a well-defined territory—including changing rooms, lounge, and sauna. The plant is small, with about 700 employees and a single shift capacity of 30,000 cars per year. Volvo management viewed small size as important for greater flexibility, as well as a better quality of working life through job enrichment and enlargement.

Both the plant layout and the group-based organization of assembly jobs create a sense of factories within a factory. The fundamental design decision was to replace the traditional moving assembly line with a system in which each car is assembled on its own carrier—essentially a self-propelled platform that follows magnetic strips in the floor. These car-carriers, designed by Volvo, tilt the entire car for work on the underside. A central computer monitors the positions of the carriers as they move from one workstation to the next. Start/stop signals for entering and leaving each station come from the computer but can be overridden by workers on the floor. A typical work area, manned by 15 to 20 workers, has several workstations and can accommodate six carriers at a time. Each car spends about 20 minutes in the group's work area.

While the plant's technical staff use conventional techniques to allocate tasks among work groups and stations, each group has a good deal of autonomy in carrying out their assigned tasks. Groups members typically rotate from job to job for variety, but few want to rotate from one group to another. One foreman supervises a pair of groups, while quality control inspectors function as members of the group.

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[57] Information based on OTA staff visit to the Kalmar plant; also, see U.S. Congress, House Committee on Science and Technology, Subcommittee on Science, Research and Technology, *The Human Factor in Innovation and Productivity* (Washington, DC: U.S. Government Printing Office, 1981), pp. 182-252.

Volvo is clearly satisfied with the results at Kalmar. The company claims that manhours per car are 25 percent less than at Volvo's other plants, and quality is high.[58] Capital costs were higher than at a more conventional assembly plant.[59] Absenteeism still runs around 24 percent: 10 percent "sickness," and the rest largely authorized; the sickness rate is reportedly half that at several other Volvo plants.[60] Surveys show that most Kalmar workers are satisfied with their jobs but also feel they have little chance to use all their skills or learn new ones.

National Policies Supporting Innovative Organization of Work

Sweden is one of the West European countries where governments have supported workplace innovation. Since the early 1970s, Sweden's system of official partnership between government, industry, and unions has encouraged changes in work organization and job content in connection with technological change. Largely a response to demands for more attractive jobs, the innovations include small, independent units of production and work roles that try to engage workers more fully. The Swedish Work Environment Fund, supported by industry levies plus government and private sector grants, provides money for research, development, training and education in work environment issues. In a 5-year program in the 1970s, the Fund spent an estimated $227 million on projects to improve occupational safety and health, broadly defined.[61] Recently, the Fund has shifted its emphasis toward improving the fit between computer-based technology and work organization. The Fund is currently supporting efforts which integrate technical and human concerns in designing advanced manufacturing and office systems.

West Germany has subsidized improvements in work organization to a greater extent than any other country. From 1974 to 1983, the West German government spent approximately $325 million on its Humanisation of Working Life Programme. Recently, spending has averaged about $50 million per year, against a backdrop of general fiscal austerity.[62] Over 1,500 projects have been completed and documented.

Results of the West German program have been mixed. It has emphasized engineering design as a major way of improving jobs, and has had some success in influencing factory design. Features such as modified assembly lines, buffers, and grouping of machines and work stations to improve the work environment have been adopted in many German companies. Human systems innovations, such as job rotation, job enlargement and enrichment, and semi-autonomous groups have been less accepted. The program's heavy reliance on behavioral science researchers, often lacking practical experience in industry, has sometimes led to conflict with managers, and with labor as well.

Until recently, these problems were aggravated by the West German goverment's policy of paying most of the costs of work humanization projects. As a result, host companies tended to view researchers as a necessary nuisance, and not to take their activities seriously. The policy has changed; companies must now pay half the cost of design research. Greater attention is being given to economic efficiency; work humanization is viewed as compatible with this aim. Small and medium-sized enterprises now also have greater access to program funds. In the United States there is no official government support of innovations in work organization, but interest in newer systems which include greater worker participation and responsibility appears to be rising. Production systems that better integrate people and machines hold the promise of cutting costs and improving products, especially with computer-based technologies. If the promise is fulfilled, participative work organization may become a strong factor in improving the competitiveness of U.S. industry.

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[58] See S. Aguren, et al., *Volvo Kalmar Revisited: Ten Years of Experience* (Stockholm, Sweden: Efficiency and Participation Development Council, 1984), p. 12.

[59] Ibid., p. 28.

[60] P. Enstrom and K. Levinson, *Industrial Relations in the Swedish Auto Industry—Developments in the Seventies* (Stockholm, Sweden: Swedish Center for Working Life, 1982), p. 36.

[61] The Swedish Work Environment Fund, *Programme of Activities and Budget*, 1983/4-1985-86, Summarised Edition, Stockholm, Sweden, pp. 10-11.

[62] David Jenkins, "Germany Engineers Work Humanization," *QWL Focus*, vol. 3, summer 1983, Ontario Quality of Worklife Centre, Toronto, Canada, pp. 23-25; and Peter Schuh, "Report From Germany," Seminar Report of European Association of National Productivity Centres, in Work Research Unit, London, *Information System News and Abstracts No. 74* May/June 1985.

APPENDIX 8A: FORECASTING THE EFFECTS OF TECHNOLOGICAL CHANGE ON JOBS

The effect of technological change on jobs raises concerns of various kinds among many people. Workers fear that their jobs will be eliminated, or altered to the point where they will need additional education or training to fill them. Managers worry that technological change will mean greater demands for particular kinds of workers than the Nation's schools produce, and educators worry that curricula will become obsolete. People choosing careers want to know what course of action will lead them to a good job; in some cases, changing technology can alter the picture in only a few years.

The Bureau of Labor Statistics (BLS) periodically makes and updates 15-year projections of employment by occupation and industry; these are widely used by labor market analysts and by job-training and high school counselors. The projections detail how many people are expected to be in the work force, and in what occupations and industries. Qualitative changes that occur within occupations—often as a result of applications of new technology—are not included in the projections.[63] BLS does attempt to incorporate the effects of technological change into its occupational/industry forecasts at several stages in the forecasting process.

Given the difficulties inherent in predicting technological innovation and diffusion, projections of the effects of technology on jobs, or even of the technologies themselves, have many uncertainties. For example, major innovations like the transistor and computers were not widely recognized as commercially important at first. Conversely, some innovations have failed to meet early commercial expectations; for instance, in the early days of television, many people forecast that television would revolutionize education, a promise which has not been fulfilled. The commercial viability and diffusion of process innovations are equally difficult to forecast. In 1964, an article in the *American Machinist* confidently hailed numerical control as "the one overwhelming metalworking development of the century," and predicted that use of NC machines in the future probably would be limited "more by the capacity to build NC machines than by any other factor."[64] In the succeeding two decades, however, the diffusion rate was much slower than initially thought.

It is also difficult to judge the ways designers, managers, and workers will integrate new machines and technologies with people, since there is not one unique way to combine people and machines. Different organizations will approach the problem in different ways. Their decisions affect the number of people in different occupations as well as the skills and training needed in those occupations. For example, some clinical chemical laboratories, when buying machines to perform blood tests formerly done by hand, have chosen to keep college-trained medical technologists in the lab jobs. The technologists are expected to be able to judge when a test result is suspect or may have life-threatening implications. Other laboratories have reduced the percentage of medical technologists and added less skilled medical technicians to run and monitor the machines. These labs retain some technologists to judge the validity of test results, but the number of positions for medical technologists is reduced.[65]

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[63] BLS does evaluate qualitative changes expected in many different jobs in the *Occupational Outlook Handbook*, published every 2 years. The handbook describes the nature of different jobs, what training they may require, their pay scales, and the number of opportunities they may provide. The *Dictionary of Occupational Titles*, compiled by the Employment and Training Administration (ETA), includes job descriptions for thousands of jobs based on on-site evaluation. While the dictionary contains a wealth of qualitative information, it is not designed to capture ongoing or potential changes in jobs.

[64] "The Impact of NC," *American Machinist*, Oct. 26, 1964, pp. NC2-4.

The study of occupations that are continually changing is also hampered by poor compatibility of data and changes in job classification systems. New job titles, for example, are frequently added to improve the detail of occupational data. Both historical figures and projections of the number of people in given occupations are available. Comparability suffers, however, as changes in the workplace alter occupational responsibilities, even if changes are not made in job classifications. Thus, identifying skill changes due to technology is at least a two-stage process: first, quantitative changes in occupational categories must be noted; and second, qualitative changes within each occupational category need to be evaluated.

Finally, the use of any technology—and therefore, its impact on jobs—depends heavily on a number of other factors which are difficult to forecast even for the immediate future. The list of these factors includes changes in consumer preferences and purchasing patterns, economic conditions, the objectives and strategy of labor and management, and the number and kind of competitors (domestic and international) in the field. In turn, many of these variables are themselves affected by technology; for example, access to the capital needed to invest in many up-to-date production technologies is a major determinant of what firms and nations can compete in the market. Isolating the effect of technology from these other factors is quite difficult, and adds to the uncertainties of forecasting.

The Bureau of Labor Statistics Occupational Projections

For decades BLS has compiled and published data on present and future job prospects for people seeking employment in a range of occupations. This information, initially designed to be of service to veterans returning from World War II, is currently aimed primarily at high school guidance counselors and students who are making preliminary career decisions.

BLS must make assumptions about new technology in developing occupational projections; these assumptions are reflected in their results.[66] Projections of occupations through 1995, for example, indicate that word-processing equipment will reduce the need for typists, and that the wider use of industrial robots will affect the demand for welders, production painters, and material-moving occupations. In the BLS predictions of the 20 fastest growing occupations, the effects of computers are clearly apparent for many—e.g., computer programmers, computer systems analysts, data processing equipment repairers. However, the 20 occupations where the largest job growth is expected in absolute numbers are largely traditional; for example, cashiers, registered nurses, janitors and cleaners, truck drivers, waiters, and salespeople, and nursing aides and attendants (see table 8A-1).

The BLS Employment Projection System is a series of five interconnected models that produce occupation-specific forecasts of employment for 378 industries and approximately 1,500 occupations.[67] These five models are:

1. labor force model—projects the size of the labor force based on demographic statistics and other considerations, such as increased participation of women in the work force;

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[65] Bernard Ingster, consultant, personal communication.

[66] See U.S. Department of Labor, Bureau of Labor Statistics, "BLS Handbook of Methods," Bulletin 2134-1, vol. 1, December 1982.

[67] John A. Hansen, "Bureau of Labor Statistics Methodology for Occupational Forecasts: Incorporating Technological Change," contract report prepared for the Office of Technology Assessment, April 1984.

Table 8A-1.—Occupations With the Largest Job Growth and Fastest Growing Occupations as Projected by the Bureau of Labor Statistics, 1984-95 (numbers in thousands)

	Employment		Change in employment 1984-95		Percent of total job growth 1984-95
Occupation	1984	1995	Number	Percent	
Largest job growth:					
Cashiers	1,902	2,469	566	29.8	3.6
Registered nurses	1,377	1,829	452	32.8	2.8
Janitors and cleaners, including maid and housekeeping cleaners	2,940	3,383	443	15.1	2.8
Truck drivers	2,484	2,911	428	17.2	2.7
Waiters and waitresses	1,625	2,049	424	26.1	2.7
Wholesale trade salesworkers	1,248	1,617	369	29.6	2.3
Nursing aides, orderlies, and attendants	1,204	1,552	348	28.9	2.2
Salespersons, retail	2,732	3,075	343	12.6	2.2
Accountants and auditors	882	1,189	307	34.8	1.9
Teachers, kindergarten and elementary	1,381	1,662	281	20.3	1.9
Secretaries	2,797	3,064	268	9.6	1.7
Computer programmers	341	586	245	71.7	1.5
General office clerks	2,398	2,629	231	9.6	1.4
Food preparation workers, excluding fast food	987	1,205	219	22.1	1.4
Food preparation and service workers, fast food	1,201	1,417	215	17.9	1.4
Computer systems analysts, electronic data processing	308	520	212	68.7	1.3
Electrical and electronics engineers	390	597	206	52.8	1.3
Electrical and electronics technicians and technologists	404	607	202	50.0	1.3
Guards	733	921	188	25.6	1.2
Automotive and motorcycle mechanics	922	1,107	185	20.1	1.2
Fastest growing occupations:					
Paralegal personnel	53	104	51	97.5	0.3
Computer programmers	341	586	245	71.7	1.5
Computer systems analysts, electronic data processing (EDP)	308	520	212	68.7	1.3
Medical assistants	128	207	79	62.0	0.5
Data processing equipment repairers	50	78	28	56.2	0.2
Electrical and electronics engineers	390	597	206	52.8	1.3
Electrical and electronics technicians and technologists	404	607	202	50.7	1.3
Computer operators, except peripheral equipment	241	353	111	46.1	0.7
Peripheral EDP equipment operators	70	102	32	45.0	0.2
Travel agents	72	103	32	43.9	0.2
Physical therapists	58	83	25	42.2	0.2
Physician assistants	25	35	10	40.3	0.1
Securities and financial services salesworkers	81	113	32	39.1	0.2
Mechanical engineering technicians and technologists	55	75	20	36.6	0.1
Lawyers	490	665	174	35.5	1.1
Correction officers and jailers	130	175	45	34.9	0.3
Accountants and auditors	882	1,189	307	34.8	1.9
Mechanical engineers	237	317	81	34.0	0.5
Registered nurses	1,377	1,829	452	32.8	2.8
Employment interviewers, private or public employment service	72	95	23	31.7	0.1

SOURCE: George T. Silvestri and John M. Lukasiewicz, "Occupational Employment Projections: The 1984-95 Outlook," *Monthly Labor Review*, vol. 108, No. 11, November 1985, pp. 51-52.

2. macroeconomic model—predicts the future level of economic activity based on assumptions concerning growth in the gross national product, defense spending, inflation rate, and other factors;
3. industry activity model—projects the aggregate demand for goods and services for each industry;
4. industry labor demand model—projects the total labor requirements by industry; and
5. occupational labor demand model—provides a breakdown of labor demand in each industry by occupation.

The fifth model, providing occupational projections, incorporates the results and assumptions of the other four models. If results from any of the models are inconsistent with initial assumptions, other model adjustments or new assumptions are made. These changes are based on judgments and may affect other model results. BLS therefore repeats the procedure until all conditions are met. If, for example, the projected number of aircraft assemblers is assumed to be reduced due to technological change, the growth rate of this occupation can be reduced in the model. To meet a predetermined staffing ratio other occupations in the same industry would be adjusted upward. Several of these adding-up requirements may have to be made with respect to a single technological assumption.[68]

Virtually all the effects of technological change encompassed in the modeling system are introduced through exogenous adjustments made by BLS staff. The staff is aware of the importance of technological change and does make changes in the models to accommodate them. The BLS staff is conservative about making adjustments to the model based on technological change; unless there is both evidence that an adjustment is required and evidence about the appropriate magnitude of that adjustment, BLS assumes that the future will follow historical patterns.[69] However, even with this conservatism, hundreds of adjustments are made. BLS analysts make the adjustments on the basis of officewide guidelines about the basic economic assumptions that underlie the model, and on the strength of their own knowledge of particular industrial sectors. Often, the changes made to incorporate the effects of technological change represent the judgments of one or a few analysts. This is not necessarily inappropriate; regardless of the forecasting procedure involved, forecasts must represent the judgments of individuals about the future, if they are not to be a simple extension of past trends. However, because it is difficult to make accurate judgments about many future possibilities, the most useful forecasts incorporate sensitivity analyses to show how the outcome of the forecast depends on the assumptions used in making the forecast.

Despite the uncertainty about the kinds and rates of technological change, BLS has performed no sensitivity analyses on the model with respect to different technological futures. With budgetary considerations forcing BLS to reduce the number of occupations reviewed, it is unrealistic to expect a more formal evaluation of technologies in the near future. BLS sensitivity analyses are mainly confined to varying macroeconomic assumptions—e.g., GNP growth, personal consumption, imports and exports, government expenditure, the growth of the labor force, and worker productivity—to produce estimates of employment in high, moderate, and low ranges. This sensitivity analysis is useful but limited. As a result, the 15-year forecasts tend to become outdated in only a few years. For example, forecasts published in June of 1979 expected exports to grow more rapidly than imports through the 1980s, while in fact the first half of the decade has been marked by record American trade deficits. The same projection expected manufacturing employment to increase to over 23 million in 1985; in fact, manufacturing employment in 1985 was about 19.4 million—1.6 million below the actual 1979 level, and 3.6 million below the projected figure.[70] BLS updates its long-term forecasts every 2 years, correcting for the difference between the projected and the actual; even so, long-term forecasts, without a great deal more sensitivity analysis, are not reliable indicators of what will happen.

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[68] Hansen, op. cit.

[69] Ibid.

[70] Valerie A. Personick, "Industry Output and Employment: BLS Projections to 1990," *Monthly Labor Review*, April 1979, pp. 25-36.

The *Dictionary of Occupational Titles*

Many analysts, when looking at qualitative aspects of jobs, rely on another publication of the Department of Labor, the *Dictionary of Occupational Titles (DOT)*, published since 1939.[71] The *DOT* attempts to identify the skill and training requirements of a very large sample of jobs in the economy. *DOT* categorizes titles and descriptions of 12,099 occupations. According to the most recent (1977) edition, *DOT* is intended for use in employment counseling, in career guidance, and in developing public and private labor plans and training programs.

In analyzing the skill requirements for each job, *DOT* first breaks the job down into worker functions associated with people, data, and things, and then ranks the job within these categories. For example, in jobs that involve handling data, the highest level is "synthesizing," the lowest level "comparing." Second, job titles are categorized according to traits on computer tapes available to users of *DOT*. These traits include education and training requirements, aptitudes, temperaments, interests, physical demands, and working conditions. In characterizing thousands of jobs by function and trait, *DOT* acts as a large job evaluation system for the entire U.S. economy. The criteria used in ranking jobs are subjective, but that is a weakness common to most job evaluation systems. However, the *DOT* has some particular limitations of its own.

Specifically, *DOT*'s job analysis methods are most suited to jobs that can be broken down into discrete tasks, particularly manufacturing jobs. The factors and scales used in rating worker functions and traits were developed in the 1950s using a sample of occupations, mainly those in manufacturing. Since then, employment growth in the service sector has outpaced growth in manufacturing jobs, and new technologies have entered the workplace. These changes have undercut the validity of some of the *DOT* skill measures. Additionally, some *DOT* job descriptions may be weak because of poor management of the onsite analyses used in compiling the 1977 edition.[72] In addition, the document's coverage of newly emerging industries and occupations may be inadequate, because the 1965 edition of *DOT* was used as the sampling frame for jobs included in the 1977 edition.[73]

Despite its limitations, *DOT* is extensively used. Job placement interviewers within the State-Federal Employment Service rely on the job titles and definitions to match unemployed workers with openings in State and local job banks, and Employment Service counselors use the information on workers' traits to help clients explore vocational options. *DOT* is also used by counselors, personnel managers, employment placement officers, and labor market analysts in schools, government agencies, and private firms.[74] The Bureau of Apprenticeship and Training uses it for training, the Veterans Administration relies on it for rehabilitation and employment counseling, and vocational educators use it for counseling and curriculum development. In 1980, following an extensive study of the 1977 edition, the National Academy of Sciences concluded that there was a strong and continuing need for the kind of information that *DOT* provides.[75]

DOT was not designed to depict the influence of technological change, although some information can be gleaned from individual job descriptions. As an illustration, box 8C gives the job descriptions for an injection machine operator and an injection machine tender for the manufacture of plastic products. One of the most noted occupational changes with automatic production equipment is the shift from controlling to monitoring work tasks. The two job descriptions demonstrate this shift. Yet the descriptions do not explicitly reveal that the machine tender's job is in a more technologically advanced system than the machine operator's. The equipment for each job is not described, and various ways in which tasks are allocated within these jobs is not apparent.

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[71] U.S. Department of Labor, *Dictionary of Occupational Titles*, 4th ed. (Washington, DC: U.S. Government Printing Office, 1977).

[72] Ann R. Miller, et al., *Work, Jobs, and Occupations: A Critical Review of the Dictionary of Occupational Titles* (Washington, DC: National Academy Press, 1980), p. 146.

[73] Ibid.

[74] Ibid., p. 91.

[75] Ibid., p. 214.

DOT job descriptions could be made clearer if closer attention were given to occupational comparisons and changes within job titles. Data from additional onsite evaluations and survey data could help in updating the *DOT*, to make it better reflect the nature of existing jobs. Up-to-date descriptions would help workers in making job transitions, by providing information that would allow matching a worker's past experience with the requirements of current jobs.

Box 8C.—Sample Occupations From the *Dictionary of Occupational Titles*

556.382-014
Injection-Molding-Machine Operator (fabric. plastics prod.) injection molder; molder.

Sets up and operates injection-molding machines to cast products from thermoplastic materials: Installs dies on machine, according to work order specifications, using clamps, bolts, and handtools. Sets machine controls, regulating molding temperature, volume of plastic molding pressure and time, according to knowledge of plastics and molding procedures. Dumps premixed plastic powders or pellets into hopper, and starts machine. Pulls lever to close dies and inject plastic into dies to cast part. Removes finished product from dies, using handtools. Trims excess material from part, using knife. May mix thermoplastic materials and coloring pigments in mixing machine, according to formula. May grind scrap plastic into powder for reuse.

556.685-038
Injection-Molding-Machine Tender (fabric. plastics prod.; phonograph; rubber goods)

Tends injection-molding machines that form plastic or rubber products, such as typewriter keys, phonograph records, and luggage handles: Dumps plastic powder, preformed plastic pellets, or preformed rubber slugs into hopper of molding machine. Starts machine that automatically liquefies pellets, slugs, or powder in heating chamber, injects liquefied material into mold, and ejects molded product. Observes gages to insure specified molding temperature and pressure are maintained. Examines molded product for surface defects, such as dents and cracks. May heat plastic material over steamtable or in oven to prepare material for molding. May remove product from mold, using handtools. May trim flash from product, using shears or knife. May place product in cold water or position it on cooling fixture to prevent distortion.

Source: U.S. Department of Labor, Employment and Training Administration, *Dictionary of Occupational Titles*, 4th ed. (Washington, DC: U.S. Government Printing Office, 1977), pp. 407, 409.

Chapter 9

The Effects of International Trade on U.S. Skills and Employment

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Chapter 9

The Effects of International Trade on U.S. Skills and Employment

OVERVIEW

International trade has played an increasingly prominent role in the American economy since World War II. The position of dominance in world markets that U.S. producers enjoyed following the war has eroded, although the United States continues to be a major force shaping international trade. **While U.S. leadership has diminished, trade has roughly doubled as a percentage of GNP in the past two decades, and the impact of trade on American workers has increased correspondingly**. In the 1980s, the employment impacts of trade have been of particular concern because of record trade deficits. The merchandise trade deficit in 1984 was $107 billion; in 1985, it is expected to be $150 billion. The services trade balance, historically a surplus for the United States, fell by more than half between 1980 and 1984. Both the high value of the dollar and declining competitiveness in many industries are important factors behind U.S. trade performance in the 1980s.

International trade affects employment in many different ways. It is an important force behind the numbers of jobs available to U.S. workers, and is equally important in the kinds of skills and education American workers need to maintain relatively stable, productive worklives. In the relatively open economy of the United States, increasing dependence on international trade means that American employment is harder to affect using strictly domestic policies. Conversely, policies which affect the volume or character of international trade—e.g., protection of domestic industries and bilateral or multilateral agreements regarding trade—have more important consequences for employment in the United States.

One of the positive employment consequences of the expansion of trade is the increase in the number of workers who are employed making goods and services for export. In 1984, 4.5 million American workers—over 4 percent of the civilian work force—owed their jobs to exports, according to the Department of Commerce. **Since 1980, however, the number of jobs generated by exports has fallen from over 6 million, because of declining merchandise exports and increases in labor productivity**.

In general, workers in industries in which trade has stimulated employment tend to be more skilled than workers in industries where employment has been hurt by trade. **On balance, as trade increases, we should expect the demand for better educated, skilled workers—including professionals, technicians, and managers—to increase, and the jobs of semiskilled and unskilled production workers in manufacturing to become more vulnerable**.

There is no question that imports have been a major factor behind job losses in many American manufacturing industries such as the apparel and textile industries, television manufacture, footwear, and automobiles. In these five industries alone, employment declined by nearly 428,000 between 1977 and 1984, largely due to imports. In other manufacturing industries where imports are growing faster than demand, the United States can expect job losses.

American industries respond to increased international competition, much of which manifests itself in the form of increased imports, in a variety of ways, mostly aimed at reducing production costs. Many industries automate. To improve competitiveness, firms usually have to improve productivity, and the method often chosen is to improve process technology. Automation has been a major strategic response of many industries, including motor vehicles, textiles, and televisions. In these and other manufacturing industries, the increases in productivity resulting from automation have cost jobs, in the face of slowly growing or level demand, and these trends are expected to continue.

Another response to increasing competition is emigration, or reorganizing production on the international level. This strategy is aimed at reducing production costs by capturing lower wage rates offshore, often while maintaining capital-intensive operations (in both human and physical capital) such as company management, research and development, and other operations involving high proportions of skilled labor in the United States. Moving operations that are more intensive of low-skill labor offshore to make products for the home market is a relatively new feature on the landscape of American international investment, but in the past two decades it has had significant impacts on employment in many U.S. industries. The television industry, the semiconductor industry, the telecommunication equipment industry, and the apparel industry are examples of sectors which have used offshore production facilities to lower production costs. The number of industries and products in which offshore processing is done is expected to continue to increase, along with the number of workers whose jobs are vulnerable. **Because it is the operations which use the most unskilled labor which are typically sent offshore, again, the unskilled and semiskilled production workers in the United States are most likely to be displaced as a result**.

Both automation and global production can be important factors in maintaining or enhancing the competitiveness of American firms. To the extent that these strategies are successful, therefore, these are important strategies in preserving American jobs—mostly, however, the jobs of educated or skilled people—that would be lost if firms go out of business altogether.

Another option that many industries choose, in addition to strategies to preserve competitiveness, is to ask for trade protection. The combination of high unemployment rates and record trade deficits in the 1980s has brought trade protection debates into new prominence. While OTA did not analyze the benefits and costs of protection or U.S. trade policies, this chapter does discuss the relationships—both positive and negative—between protection and employment. On the positive side, protection can stretch out the period of employment decline in industries responding to international competition, making it possible to reduce employment through attrition rather than layoffs. Protection can also give workers a chance to prepare for new jobs while they are still employed, and companies a chance to adjust to increased international competition. However, protection is expensive. While the costs of preserving American jobs—e.g., in the automobile industry—have been overstated, there is little question that using protection to save jobs is a costly proposition. Moreover, protection does blunt the competition, removing at least some of the incentives for companies to work to improve competitiveness. This may merely postpone massive job losses. As a result, many policymakers and private businesses have begun to advocate temporary protection, combined with requirements for protected firms to take steps to improve competitiveness and provide adjustment services for workers.

INTRODUCTION

Since World War II, international trade in goods and services has become a more important feature of most of the world's economies. For example, world trade in merchandise (manufactured goods) grew 50 percent faster in volume than the world's total manufacturing output between 1960 and 1981; increasing proportions of world production were exported, and increasing proportions of consumption came from imports.[1] International trade in services also increased rapidly, although not so rapidly as merchandise trade.

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[1] U.S. Department of Commerce, International Trade Administration, *U.S. Trade: Performance in 1983 and Outlook* (Washington, DC: U.S. Government Printing Office, June 1984), p. 3.

In the United States, trade has risen greatly in the past two decades as a component of the economy. Between 1970 and 1984, the dollar value of imports of merchandise[2] rose 16 percent per year, from $39.9 billion to $327.8 billion, or from 4 percent to nearly 9 percent of gross national product (GNP).[3] In the same period, merchandise exports increased 12 percent annually, from $42.5 billion to $220.3 billion, or from 4.3 percent of GNP to 6 percent.[4] The expansion of U.S. trade has many positive effects on the economy. Increasing trade means, for consumers and producers alike, that a wider variety of products is available. In addition, the products and services which are traded embody knowledge of production processes and technology, and trade helps to transfer this knowledge. Such transfers enable people in poor or developing countries to improve their standard of living, as they learn how to produce sophisticated products.[5]

Another result of the rising importance of trade is that more and more U.S. workers are affected. This has both positive and negative impacts: more people owe their jobs to additional demand created by exports and more people are threatened with job loss or have lost jobs as a result of import competition. The difference in the rates of growth between imports and exports means that the number of workers affected by import competition has grown faster than the number of workers who owe their jobs to exports. The United States has changed from being a net exporter throughout much of the 20th century to being a net importer on a very large scale. The largest contributor by far to the deficit is merchandise trade: in 1984, the merchandise trade deficit was $107 billion. Throughout the 1970s and 1980s, the United States has run services trade surpluses. Although the surplus fell by more than half from 1980 to 1984, the services surplus was still $17.0 billion in 1984.[6] However much of the services trade surplus is in investment income, unconnected with U.S. jobs. Leaving this out, the United States will probably experience a serious services trade deficit in 1985. This is the first year that services trade, exclusive of investment income, will experience a deficit.

The rapid deterioration of the U.S. international trade balances in the 1980s, both in services and merchandise, is largely a result of the rise in the value of the dollar against foreign currencies.[7] However, it is also a fact that many U.S. manufacturing industries have lost competitive ability relative to foreign producers. Many of these industries began to have competitive problems in the late 1970s, when the dollar was undervalued, and some had begun to decline earlier. It will be very difficult for industries with basic competitive problems to recover when the dollar falls. The number of industries with basic competitive problems has risen, and now includes portions of high-technology sectors. Such industries will have more difficulty creating new production jobs; it will be difficult for many to avoid displacement and employment loss. Even industries which probably are internationally competitive, but for the overvalued dollar, will have trouble rebounding from the prolonged setback of the 1980s. Although the value of the dollar has dropped since spring of 1985, it still has a long way to fall before affected industries will be able to reestablish market position. Even then, regaining customers who have built relationships with foreign suppliers may take time.

Decreasing costs of communication and transportation have been significant factors in the expansion of international trade, as well in the difficulties many U.S. firms face in international competition. Easier communication means that information on economic and political trends, fashions and tastes, production techniques, and the like can be quickly and cheaply shared internationally, giving foreign producers up-to-date information to plan production and exports. For example, swift style changes in high-fashion apparel require either production very close to the market, or communication links which allow producers in other nations to collapse the time between the emergence of a fashion trend and delivery of finished apparel to the market.

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[2] Merchandise trade includes petroleum and petroleum products, manufactured goods, and agricultural products.

[3] U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, various issues.

[4] Ibid.

[5] Richard M. Cyert, "The Plight of Manufacturing: What Can Be Done?" *Issues in Science and Technology*, Summer 1985, p. 89.

[6] Much of this surplus is investment income, unconnected with U.S. jobs. Leaving out the investment income, the United States will probably run a substantial services trade deficit in 1985.

[7] The spectacular rise of the dollar, in turn, has been linked to high U.S. budget deficits and interest rates. These relationships are complex, and are not addressed in this study. For a discussion of the deficit issue, see Norman S. Fieleke, "The Budget Deficit: Are the International Consequences Unfavorable?" *New England Economic Review*, May/June 1984.

Falling transportation costs mean that countries with even modest cost advantages in production are better able to compete on the basis of that cost advantage in foreign markets. Reduction of either transportation or communication costs accentuates the importance of other cost factors in determining where products are made. In industries and production processes which rely heavily on unskilled or semiskilled labor, labor costs can be a particularly important influence on the competitive position. Labor costs reflect both the compensation paid to workers (wage rates plus fringe benefits and payroll taxes) and labor productivity (labor content per unit of output). Thus, industries and countries with relatively high wage rates may still be internationally competitive if worker productivity is great enough to support the high wages. Worker productivity, in turn, is affected by many factors, including good management, up-to-date equipment, the education and skills of the work force, labor-management relations, and effective work organization.

Industrialized countries with relatively high wage rates, such as the United States and West Germany, often respond to competition from low-wage countries by automating production to raise worker productivity. While higher productivity is essential to improving competitiveness, it can also cost jobs, as smaller numbers of workers are needed to produce equivalent output. If demand is rising more slowly than productivity, jobs are lost. Moreover, in industries or production processes where labor costs are a large portion of production costs, automation sometimes cannot offset the advantage of producers in low-wage areas. Production with automated equipment may be more expensive than more labor-intensive production in low-wage countries, or automation may fail to raise productivity enough to make products competitive. Labor costs have been a significant factor, for example, in loss of competitiveness of the U.S. apparel industry, commodity semiconductors, motor vehicle parts, footwear, computer components, consumer electronics, shipbuilding, and textiles. In these cases, imports become more attractive, often displacing domestic production. In many of these industries, however, wages of American workers are high only by comparison with wages in the Third World; workers in the apparel and footwear industries, for example, made less than $6 per hour, only two thirds the average hourly wage for all American production workers in September 1985.

Because the labor cost advantage is often large in industries which rely heavily on unskilled and semiskilled production workers—a type of labor which is abundant in many developing and Third World nations—the effect of increasing global competition falls more heavily on production workers than on skilled technical and professional workers. Among the workers displaced between 1979 and 1984, the group most affected in relation to their numbers was machine operators, assemblers, and inspectors in manufacturing (see ch. 3).

The expansion of international trade makes it harder for industrialized nations like the United States to affect employment using strictly domestic policies. For example, a tax cut designed to stimulate employment by increasing consumption has a smaller employment effect if much of the additional consumption is produced overseas. More and more, the number and kinds of jobs available in the U.S. economy depend on international trade and competition. This is particularly true in manfacturing industries, which can produce goods in one location for consumption in another.[8]

For at least the next few years (holding cyclical factors constant), manufacturing employment is likely to remain level or decline. Even in the long run, if trade continues to gain importance in the U.S. economy, competitive pressures from a growing number of countries and industrial sectors is likely to exert downward pressure on manufacturing employment. Some of the downward pressure will be offset by rapidly rising demand; for example, growth in demand for semiconductors is projected to be 19 percent per year through 1990, and semiconductor employment is expected to increase. In other sectors such as steel, apparel, and automobiles, no such rapid expansion of demand is anticipated to counter the effects of foreign competition. Of course, if demand growth exceeds expectations, total manufacturing employment may increase.

In the whole economy, the number of workers whose jobs are affected by trade will increase if global trade continues to grow. The dollar cannot remain overvalued forever; as it falls, U.S. exports should be stimulated, and more people will be employed in producing products for export. While the growth of imports may be slowed by a falling dollar, growth will probably continue nonetheless, and more workers' jobs will be affected by imports. Those whose jobs are most vulnerable are likely to be those less skilled, particularly in manufacturing.

THE EFFECT OF TRADE ON EMPLOYMENT

Export markets increase the effective demand for products, which adds to employment. Export-generated employment includes workers in industries which produce goods and services for export, upstream employment in industries making inputs to goods and services which are exported, and downstream jobs needed to move products to ports. For example, exports of U.S. aircraft create more jobs not only in aerospace industries but in the steel, aluminum, plastics, electrical and electronic machinery, and machine tools industries as well. People involved in transporting the aircraft to their destinations are also counted in export-generated employment.

The relationship between imports and jobs is a little more complex. In some situations, increasing imports cost American workers their jobs; in other cases, imports and U.S. employment can grow together, for someone must sell and service the imported products. Imports are likely to cost jobs in industries where import penetration is increasing faster than product demand, and where import penetration is a major motivating force behind automation. Where workers are displaced in industries facing greater pressure from imports, it is overly simple to ascribe displacement either to foreign competition or to changing technology. In most cases, both forces are operating. Rising imports, and the technological changes which are made in response, are responsible for employment declines in sectors such as motor vehicles, consumer electronics, steel, textiles, and footwear.

Imports and exports also affect the demand for different types of skills. Many studies have concluded that the comparative advantage of the United States lies in skill-intensive products—e.g., aircraft, computers, and complex electronic circuits—which embody labor with a higher skill content than the products the United States imports.[9] As a result, the displacement resulting from international trade is heavily concentrated in low-skill occupations and in industries which rely heavily on unskilled labor. The jobs generated by exports, on the other hand, are difficult for these low-skilled displaced workers to qualify for.

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[8] International competition in services industries can also affect employment; however, many services, such as hotel and lodging services, restaurants, and banking and insurance, require that services be produced and consumed in the same location. Competition in services industries, and their effects on the U.S. economy and employment, is the subject of an OTA assessment, *International Competition in the Service Industries*, to be completed in 1986.

[9] Seev Hirsch, "The Leontief Paradox in a Multi-Country Setting," *Weltwirtschaftliches Archiv*, vol. 113, No. 3, 1977, pp. 417-418.

Examination of the characteristics of displaced workers substantiates this point. Nearly half of the displaced workers are from manufacturing, with overrepresentation in the least skilled occupations (see ch. 3). Another source of support is in data on the labor content of U.S. trade. A 1983 study by the International Trade Commission calculated the labor content (roughly equivalent to the number of jobs) associated with U.S. imports and exports, by industrial sector (table 9-1). The ratio of production workers (usually representing the highest proportions of unskilled and semiskilled workers) to total industry employment is an indicator of skill intensity. In the manufacturing industries where employment is significantly affected by trade, there is a highly significant direct correlation between skill intensity and positive balances of trade-related employment.[10] That is, industries whose skill intensity was highest—measured roughly by low ratios of production workers to total industry employment—had more jobs associated with exports than were embodied in imports.

From these data, it is clear that there is a high degree of association between the net labor content of trade and skills in the labor force, roughly measured. In general, the heavier the reliance on less skilled labor (production labor), the greater the likelihood that the net effect of trade on employment is negative. Industries where the availability of a particular natural resource is more important than a skilled labor force in determining a comparative advantage and industries that trade in noncompetitive specialty items do not follow this pattern.

The following sections discuss the effect of exports and imports on the number of jobs in the United States, and on the skill mix of the American work force.

Exports and the Numbers of U.S. Jobs

The growth of U.S. exports has stimulated employment in this country. In 1980, when merchandise exports were $224.2 billion, over 6 million Americans owed their jobs to exports, according to an estimate made by the International Trade Administration (ITA) of the U.S. Department of Commerce.[11] In 1982, merchandise exports had fallen to $211.2 billion, and ITA estimated that the number of workers whose jobs depended on exports fell to 5 million. In 1983, the number of export-generated jobs dropped further to 4.6 million. Merchandise exports increased by $20 billion in 1984, but the number of export-generated jobs decreased slightly to 4.5 million, largely because of increasing labor productivity.

Change in the labor content of exports was one cause of the decline in export-generated employment throughout the years from 1980 to 1984, according to ITA. As productivity increased, fewer workers were required to produce equivalent amounts of output. Between 1980 and 1982, the labor content per billion dollars of U.S. exports decreased from 30,300 jobs to 25,200.[12] In 1984, the number of jobs per $1 billion worth of exports was estimated at less than 25,000.[13]

Export-related employment tends to fluctuate fairly widely, reflecting the synergistic nature of trade itself. During periods of economic expansion, U.S. demand for imports usually increases. This stimulates export industries in other countries, raising their output and employment. These countries are then able to import more products themselves—often from the

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[10] OTA performed a Spearman Rank Correlation test on the data in table 9-1, ranking all manufacturing industries (containing more than 100,000 work-years of trade-related employment) in terms of two factors: net trade-related employment and ratio of production workers to total employment. The correlation was significant at the 0.01 percent level.

[11] U.S. Department of Commerce, *Domestic Employment Generated by U.S. Exports*, International Trade Administration, Office of Trade and Investment Analysis (Washington, DC, May 1983), Executive Summary.

[12] Ibid.

[13] U.S. Department of Commerce, "Preliminary Export-Related Jobs Estimate for 1984," Office of Trade and Investment Analysis, International Trade Administration, June 1984, mimeo.

Table 9-1.—Labor Content of Trade and Ratios of Production to Total Employment, by Manufacturing Sector, 1982[a]

	Domestic labor content (thousands of work-years)			
Industry	Imports (1)	Exports (2)	Balance (2 – 1)	Population employment ratio[a]
Office, computing, and accounting machines	200	416	216	0.40
Aircraft and parts	87	269	182	0.51
Chemicals and selected chemical products	75	233	159	0.54
Construction and mining machinery	19	175	156	0.63
Scientific and controlling instruments	73	168	95	0.57
Electric industrial equipment and apparatus	45	117	72	0.68
Plastics and synthetic materials	12	79	67	0.65
Lumber and wood products, except containers	124	183	59	0.88[b]
Drugs, cleaning, and toilet preparations	29	75	46	0.55
General machinery and equipment	61	94	33	0.63
Miscellaneous electrical machinery and equipment	54	78	24	0.70[b]
Special industry machinery and equipment	48	69	21	0.61
Metalworking machinery and equipment	62	82	20	0.70[b]
Other transportation equipment	60	60	0	0.60
Optical, ophthalmic, and photographic equipment	63	62	–1	0.53[b]
Household appliances	55	59	–6	0.77
Rubber and miscellaneous plastic products	89	72	–17	0.77
Paper and allied products, except containers	103	85	–18	0.74
Electronic components and accessories	204	180	–24	0.57[b]
Other fabricated metal products	88	59	–29	0.74
Broad and narrow fabrics, yarn and thread mills	81	50	–31	0.87
Primary nonferrous metals manufacturing	182	108	–74	0.73
Miscellaneous fabricated textile products	171	24	–147	0.81
Primary iron and steel manufacture	228	58	–170	0.75
Radio, TV, and communication equipment	326	150	–176	0.50[b]
Footwear and other leather products	228	22	–206	0.84
Petroleum refining and related industries	306	42	–264	0.60[b]
Miscellaneous manufacturing	474	150	–324	0.72
Motor vehicles and equipment	694	245	–449	0.73
Apparel	536	56	–480	0.85
All manufacturing industries				0.68

[a] Ratio of employment of production workers to total industry employment. These industries all account for more than 100,000 workyears of trade-related employment.
[b] These industries do not fit the general pattern of having lower ratios of production workers than the all manufacturing average when there is a net labor content surplus in trade, or having higher ratios of production workers when the labor content of trade is negative. See text for explanations.

SOURCE: U.S. International Trade Commission, *U.S. Trade-Related Employment*, and U.S. Department of Labor, Bureau of Labor Statistics, *Supplement to Employment and Earnings*.

United States. According to one analyst, economic growth of more than 1.5 to 2 percent in countries belonging to the Organization for Economic Cooperation and Development (OECD) means that non-oil imports of the OECD increase about three times as fast.[14] This continuing process stimulates worldwide incomes, employment, and standards of living. During downturns, the process reverses. According to the same analyst, when OECD economic growth falls below 1.5 percent annually, trade declines even faster. Falling demand for imports, in turn, hurts the economies of exporting countries, which then reduce their own demand for imports, and so on.

Between 1977 and 1980, a time of economic growth, 1.5 million jobs were generated in all sectors of the economy by the stimulus of rising exports of manufactured goods. In the manufacturing sector, export-related employment accounted for 80 percent of the increase in manufacturing jobs.[15] Between 1980 and 1983, ITA estimated that 1.5 million total jobs were lost thoughout the economy, largely due to falling export volume (exaggerated to some degree by rising productivity).

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[14] William R. Cline, "Introduction and Summary," *Trade Policy in the 1980s*, William R. Cline (ed.) (Cambridge, MA: MIT Press and Institute for International Economics, 1983), p. 5.

[15] U.S. Department of Commerce, *Domestic Employment Generated by U.S. Exports*, op. cit., p. 3.

Exports and the Demand for Skills

Exports create jobs in many sectors. Merchandise exports (which include manufactured and nonmanufactured goods[16]) accounted for about 4.9 million jobs in 1982. The stimulus for generating about 80 percent of these jobs in all sectors, according to the Department of Commerce, was the export of manufactured goods. These exports accounted for 2.3 million jobs in manufacturing industries, 0.2 million jobs in nonmanufactured goods, and 1.5 million jobs in service sectors—a total of 4 million jobs.[17]

What is the nature of jobs that are generated by exports? International trade theory, which assigns great importance to differences in factor endowments—i.e., the amounts of labor, capital, and resources—of different countries, concludes that nations which are rich in capital export capital-intensive products, and nations more heavily endowed with labor export labor-intensive goods. An early investigation into the capital intensity of U.S. exports and imports revealed, however, that by at least one measure, U.S. exports were more labor-intensive than U.S. imports.[18] This finding, known as the Leontief Paradox, stimulated a great deal of research in the ensuing three decades which tried to explain the original finding. Several explanations have been put forward; for example, some U.S. imports may be capital-intensive when produced in the United States, but more labor-intensive in the countries where they are produced. One explanation, which has been substantiated by several investigators, is that the U.S. advantage in trade lies in skill-intensive goods—i.e., products which require relatively high amounts of human capital and skill to produce.[19] In general, U.S. exports probably generate a large number of jobs for highly skilled workers; these jobs are relatively secure from competition from low-wage nations, where human capital is more scarce.

This conclusion is supported by findings of the 1983 ITA study on the kinds of labor embodied in U.S. exports and imports. As shown in table 9-1, there is a highly significant correlation between high skill content (measured by lower-than-average ratios of production employment to total industry employment) and positive balances of trade-related employment. In addition, industries in which exports account for large numbers of jobs also tend to have lower-than-average ratios of production to total employment. According to the study, the export sectors in manufacturing which embodied the largest labor content in 1982 were, in descending order of the number of work-years:

1. office, computing, and accounting machines;
2. aircraft and parts;
3. motor vehicles and equipment;
4. chemicals and selected chemical products;
5. lumber and wood products;
6. electronic components;
7. construction and mining machinery;
8. scientific and controlling instruments;
9. radio, TV, and communication equipment;
   —tied with miscellaneous manufacturing;
10. electric industrial equipment and apparatus; and
11. primary nonferrous metals.[20]

Of these 12 industries, 8[21] had ratios of production workers to total employment which were below the average for all manufacturing (figure 9-1).

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[16] Nonmanufactured goods sectors include agriculture and fisheries, forestry, coal, and other minerals.

[17] U.S. Department of Commerce, *Domestic Employment Generated by U.S. Exports*, op. cit., p. 5.

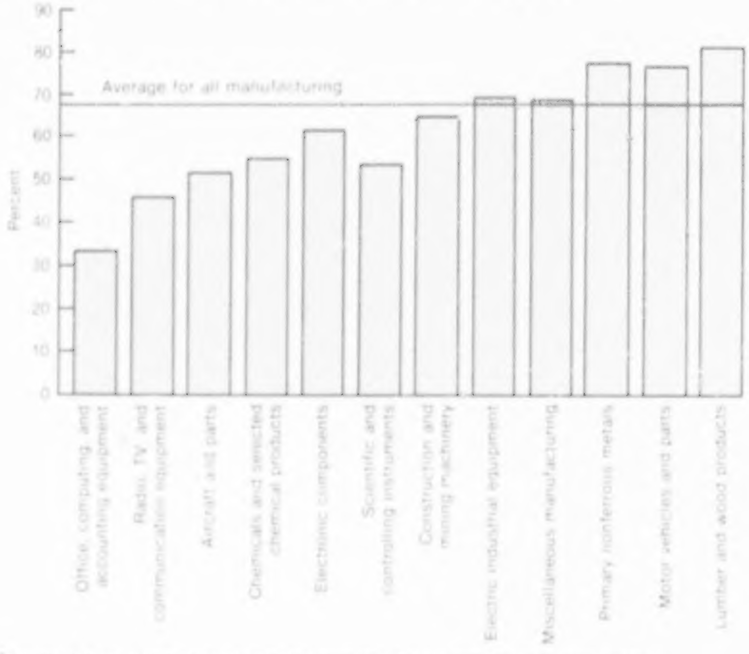
[18] Wassily Leontief, "Domestic Production and Foreign Trade, the American Capital Position Re-Examined," *Economia Internazionale*, vol. 7, Geneva, 1954.

[19] See Hirsch, "The Leontief Paradox in a Multi-Country Setting," *Weltwirtshcaftliches Archiv*, vol. 113, No. 3, 1977.

[20] U.S. International Trade Commission, *U.S. Trade-Related Employment*, USITC Publication 1445 (Washington, DC: USITC), pp. 37-40. Experts of these 12 manufacturing industries all embodied more than 100,000 work-years of domestic labor in 1982. Many of the same industries also showed substantial losses of job opportunities due to imports.

[21] The eight are: 1) office, computing, and accounting equipment; 2) aircraft and parts; 3) chemicals and selected chemical products; 4) electronic components; 5) construction and mining machinery; 6) scientific and controlling instruments; 7) radio, TV, and communication equipment; and 8) electric industrial equipment and apparatus.

Figure 9-1.—Ratio of Production Employment to Total Employment in Export Industries[a]



[a] Exports of these 12 industries all embodied more than 100,000 domestic work-years in 1982.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Occupational Employment Statistics Survey of Manufacturing Industries, 1980.

Of the four which had higher concentrations of production workers, two—primary nonferrous metals and lumber and wood products—are industries whose advantage, relative to foreign producers, rests primarily on natural resource endowments rather than capital or skill. Motor vehicles and equipment, which contributed 245,000 work-years to exports, also had the largest deficit in trade-related employment of 480,000 work-years. The reason for the industry's large contribution to export-related employment is not the skill intensity of production. Nearly three-quarters of U.S. motor vehicle exports go to Canada; the U.S. and Canadian auto industries and markets are highly integrated. Canada's domestic automobile industry consists of the major U.S. manufacturers; the Canadian motor vehicle market is an extension of the American market, and Canadians buy American cars for the same reasons Americans do.

Miscellaneous manufacturing contributed 150,000 work-years to exports, but also had a net deficit in trade-related employment of 324,000 work-years, reflecting the $4.8 billion trade deficit in miscellaneous manufactures. The industry includes a variety of sectors—e.g., jewelry and silverware, costume jewelry, games, toys, sporting goods, pens, pencils, artists' supplies, buttons and fasteners, artificial flowers and Christmas trees—many of which are specialty items. In many of these sectors, the ability to export probably is less related to the skills needed for production than to the special characteristics of the product.

Another indicator of the relative skill intensity of U.S. exports is in the ratios of managers and officers, professional, and technical workers in export industries (table 9-2). Data on the occupational makeup of industries also lends credence to the idea that industries supporting

Table 9-2.—Occupational Employment in Export Industries

		Percentage of work force (1980)						
		Occupational groups						
		High pay ◄						► Low pay
Industry	SIC codes	Managers & officers	Professional workers	Technical workers	Production, maintenance, construction, repair, & material handling & powerplant workers	Sales workers	Clerical workers	Service workers
Average for all manufacturing		6.6	6.9	2.9	68.1	2.2	11.5	1.8
Office, computing, and accounting equipment	357	11.0	21.3	14.4	32.7[a]	1.2[a]	18.3	1.0[a]
Radio, TV, and communication equipment	365, 366	8.0	20.1	9.0	45.0[a]	0.6[a]	15.9	1.4[a]
Aircraft and parts	372	7.8	20.1	5.9	50.9[a]	0.4[a]	13.4	1.6[a]
Chemicals and selected chemical products	281, 286, 287, 289	9.9	12.9	5.4	54.2[a]	2.8	12.8	2.0
Electronic components	367	6.6	11.5	7.4	61.0[a]	1.0[a]	11.1[a]	1.3[a]
Scientific and controlling instruments	381, 382, 384, 387	8.1	10.2	10.5	53.3[a]	2.0[a]	14.2	1.8
Construction and mining machinery	353	6.7	7.6	4.1	64.5[a]	2.2	13.5	1.5[a]
Electric industrial equipment	361,362	5.2[a]	7.9	4.5	69.8	0.9[a]	10.3[a]	1.3[a]
Miscellaneous manufacturing	39	7.7	3.5[a]	1.5[a]	68.8	2.8	14.1	1.7[a]
Primary nonferrous metals	333, 334, 335, 336	4.8[a]	4.4[a]	2.0[a]	77.1	1.1[a]	8.7[a]	1.8
Motor vehicles and parts	371	4.0[a]	6.7[a]	2.1[a]	76.8	0.6[a]	6.8[a]	3.0
Lumber and wood products	241, 242, 243, 249	6.2[a]	1.5[a]	0.8[a]	81.6	1.5[a]	6.4[a]	2.1
Printing and publishing	27	10.1	9.9	1.0[a]	48.8[a]	7.4	21.1	1.7[a]

[a] Lower than average for all manufacturing.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Occupational Employment Statistics Survey of Manufacturing Industries, 1980, and *Occupational Employment in Manufacturing Industries*, Bulletin 2133 (Washington, DC: U.S. Government Printing Office, September 1982).

large numbers of export-related jobs are more likely to employ highly skilled people. In printing and publishing, for example, the United States had a net trade surplus of over $300 million in 1984. Managers and officers constituted over 10 percent of employment in this sector, and professionals 9.9 percent, compared to 6.6 and 6.9 percent, respectively, in all manufacturing. In transportation equipment, which includes both motor vehicles and equipment and aircraft and parts, professional workers accounted for over 13 percent of industry employment, nearly double the average for all manufacturing. In the chemical industry and in instruments and related products, all three of the most skilled types of employment—managers and officers, professional workers, and technical workers— formed higher percentages of industry employment than in all manufacturing.[22]

Imports and the Number of U.S. Jobs

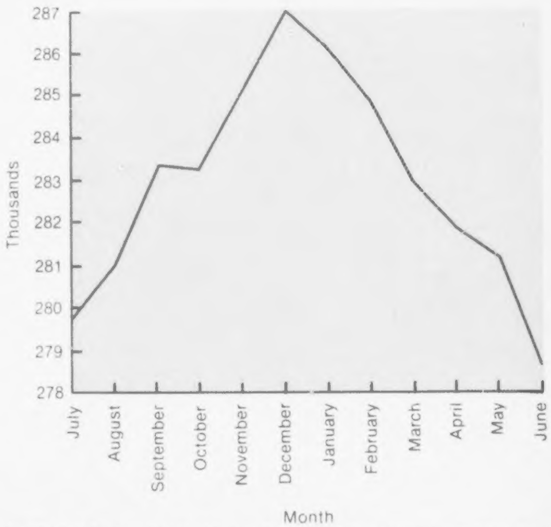
Increasing import penetration in a number of industries has been a major factor behind employment declines. However, increasing imports do not always cost American workers their jobs.

Imports do not cost job opportunities if the products which are imported cannot be produced domestically, or can be produced only in very limited quantities. These products are called noncompetitive imports, and include minerals and other natural-resource products and those based on proprietary or patented technologies.[23] For instance, imports of diamonds, cobalt, mahogany, and teak do not cost U.S. jobs, as these things are not produced in the United States. Petroleum can be produced domestically in limited quantities, so petroleum imports also do not mean lost jobs for Americans; in fact, if petroleum imports were cut off, the effect would be a substantial loss of employment in many sectors. This is a significant example: petroleum imports were nearly 18 percent of all U.S. imports of merchandise in 1984.

Imports do not cost jobs in industries where demand for the product is growing fast enough to accommodate both rising imports and stable or increasing levels of domestic production. For example, while imports of semiconductors have risen from less than $1.8 billion in 1969 to $7.8 billion in 1984, demand has grown even more rapidly, and so has employment. Over the same period, total semiconductor industry employment went from about 75,000 to 273,000. The long-term outlook for semiconductor employment is upward, despite the cyclical slump of late 1984 and 1985. Between December 1984 and June 1985, total semiconductor employment has dropped by 8,300 jobs (figure 9-2).

However, where imports are rising more rapidly than demand, American workers can lose their jobs. If this happens gradually, much of the employment loss can be handled through attrition, as employees retire or leave to take other jobs. This is not always the case.

Figure 9-2.—Semiconductor Employment July 1984-June 1985



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, "Employment & Earnings," various issues.

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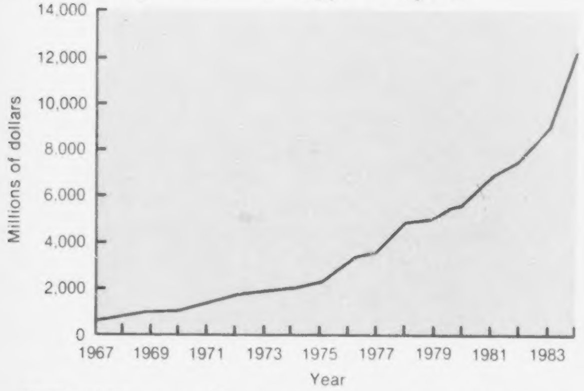
[22] U.S. Department of Labor, *Occupational Employment in Manufacturing Industries*, Bureau of Labor Statistics Bulletin 2133 (Washington, DC: U.S. Government Printing Office, September 1982), p. 4.

[23] H. Peter Gray, "Non-Competitive Imports and Gains From Trade," mimeo.

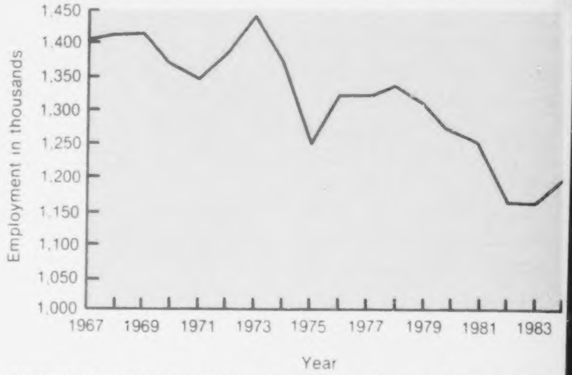
Employment in the apparel industry, for example, dropped from over 1.44 million in 1973 to 1.175 million in early 1985, while imports have captured an increasing share of the U.S. market. By 1983, one of every four garments sold in the United States was manufactured in another country; in 1958, the percentage of imports was near zero. Despite highly structured, institutionalized protection provided by the Multifiber Arrangement, the dollar value of imports has risen from less than $300 million in 1958 to about $12 billion in 1984 (figure 9-3), or, in deflated terms, by a factor of 11.[24] Although the percentage drop in apparel employment is moderate compared, for example, with losses of steel employment in the 1980s, the decline has not been steady. Apparel employment dropped by about 195,000 from 1973 to 1975, recovered to 1.33 million, and then again fell rapidly from 1978 to 1982 (figure 9-4). From 1982 to 1984, it recovered from 1.16 million to 1.196 million. These clumps of employment loss in the apparel industry were due largely to increased foreign competition, which caused many U.S. firms to close. The closures—3,200 over the last decade—were not matched by new entries.[25] There has been a net employment loss in apparel in the 1980s; between March 1980 and February 1985, 116,000 jobs were lost.[26]

Figure 9-3.—U.S. Apparel Imports



SOURCE: U.S. Department of Commerce, Market Expansion Division, OTEXA, ITA

Figure 9-4.—U.S. Apparel Employment (SIC 23)



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings.

Imports have also been an important factor in employment losses in consumer electronics, notably in the television industry. Imports of black-and-white televisions rose from one-fourth to over two-thirds of U.S. sales between 1967 and 1982,[27] while employment in television manufacture declined rapidly.[28] Several other factors—including productivity growth and relocation of manufacturing operations to low-wage countries—were responsible for employment losses in this industry, but rising imports, as part of a cluster of events, were the primary cause of job losses.[29]

The exact number of jobs lost to imports cannot be ascertained. It is too simple to assume that the number of jobs needed to make all imported products could be captured by U.S. workers if imports were cut off, for two reasons. First, many U.S. production processes are more capital-intensive (and therefore, less labor-intensive) than comparable production overseas, meaning that fewer American workers would be required to produce equivalent outputs. This appears to be the case, for example, in the manufacture of some semiconductors and computer products. Second, one of the most important reasons imports succeed is their price; they are often cheaper than equivalent U.S.-made goods. If imports were eliminated, U.S. consumers would have to pay higher average prices for products, and would reduce consumption. Thus, if U.S. production were substituted for imports, the quantity consumed—and therefore, produced—would be lower than if imports were permitted. The number of jobs thus "recaptured" would be correspondingly lower.

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[24] Source for employment figures: U.S. Department of Labor, *Employment and Earnings*, various issues. Source for import data: Carol Parsons, "The Employment Effects of International Trade in the Apparel Industry," contractor report for the Office of Technology Assessment, April 1985, p. 8. The MFA did permit increasing imports of apparel and textiles; however, imports have risen faster than MFA targets.

[25] Parsons, op. cit., p. 8.

[26] Employment figures are seasonally adjusted.

[27] John A. Alic and Martha Caldwell Harris, "Employment Lessons From the U.S. Electronics Industry," manuscript; and U.S. Congress, Office of Technology Assessment, *International Competitiveness in Electronics*, OTA-ISC-200 (Washington, DC: U.S. Government Printing Office, November 1983), p. 112.

[28] BLS statistics on employment, used throughout this report, go back only to 1972 for radio and TV receiving sets (SIC 3651). Between 1972 and 1984, employment in SIC 3651 dropped from 114,500 to 71,800. Source: U.S. Department of Labor, Bureau of Labor Statistics, *Historical Employment and Earnings* and various supplements.

[29] Alic and Harris, op. cit.

Although it is difficult to identify precisely how many job opportunities disappear or how many workers are displaced by imports, there is no question that increasing imports do eliminate American jobs.

Imports and the Demand for Skills

In marked contrast to the case of exports, manufacturing industries which face the greatest pressure from imports have higher concentrations of relatively low-skilled workers. The reason is straightforward: low-wage countries have a comparative advantage in producing goods which require high concentrations of low-skilled labor.

One study examined the demographic and occupational characteristics of workers in 20 manufacturing industries in which trade-related job opportunities had been most adversely affected, and compared them with 20 manufacturing industries with the most favorable effects on job opportunities from trade between 1964 and 1975. The study found that workers in favorably affected industries were more skilled than workers in adversely affected industries. Moreover, workers in adversely affected industries were found to be less skilled than in manufacturing as a whole.[30] Not surprisingly, the workers in industries most adversely affected were also poorer; this reflected the decline in parts of several low-wage industries, including apparel, textiles, footwear, and leather products (table 9-3). It also reflects the fact that workers with few skills—those most vulnerable to displacement due to imports—are paid less.

These findings are consistent with more current information. A study by the International Trade Commission computed the U.S. labor content embodied in exports and the U.S. labor content required to produce imports in the United States (table 9-1).

In 11 industries, the amount of U.S. labor required to substitute domestic production for imports was greater than 100,000 work-years.[31] Eight of these industries had ratios of production workers to total employment which were above the average for all manufacturing (68 percent in 1982). Many of the sectors—including lumber and wood products, paper and allied products, apparel, textile mill products, leather and leather products (which includes footwear), and primary metal products (which includes primary iron and steel)—also have proportionally fewer managers and officers, professional workers, and technical workers than all manufacturing.

Three industries do not fit the general pattern: radio, TV, and communication equipment; petroleum refining and related industries; and electronic components and accessories. In petroleum refining, the skill or labor content is less important in determining patterns of comparative advantage than resources. The United States depends on other countries for a great deal of its petroleum; as other countries (e.g., Saudi Arabia) develop their own refining industries, refined petroleum products are imported. Petroleum refining has a low concentration of production workers, and high concentrations of managers and officers, professional and

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[30] C. Michael Aho and James A. Orr, "Trade-Sensitive Employment: Who Are the Affected Workers?" *Monthly Labor Review*, February 1981, p. 33.

[31] The sectors, shown in table 9-1, include: 1) motor vehicles and equipment; 2) apparel; 3) miscellaneous manufacturing; 4) radio, TV, and communication equipment; 5) petroleum refining and related industries; 6) footwear and other leather products; 7) primary iron and steel manufacturing; 8) electronic components and accessories; 9) office, computing, and accounting machines; 10) lumber and wood products; and 11) paper and allied products.

Table 9-3.—Characteristics of Workers and Industries Whose Employment was Most Affected by Trade Between 1964 and 1975

Item	Average of the 20 favorably affected industries	Overall manufacturing average	Average of the 20 adversely affected industries
Demographic characteristics:			
Family income below poverty level	5.8 %	7.0 %	9.8 %
Annual earnings under $10,000	72.1	77.4	81.7
High school education (4 years)	39.1	36.6	34.0
College education (4 years)	6.9	5.1	3.1
Occupational measures:			
Skill measured as a percentage of the average wage in manufacturing (1937)	104.0	100.0	97.8
Skilled workers as a percentage of the labor force	55.8	50.0	38.8
White-collar workers as a percentage of the labor force	36.3	30.3	21.1
Industrial characteristics:			
Technical intensity (scientists and engineers as a percentage of the labor force)	6.87	3.20	2.29
Technical intensity (research and development as a percentage of sales)	5.90	2.36	1.39

SOURCE: C. Michael Aho and James A. Orr, "Trade-Sensitive Employment: Who Are the Affected Workers?" *Monthly Labor Review*, 1981, p. 32.

technical workers in comparison to the average for manufacturing. However, the Saudis and other oil-exporting nations have imported much of this kind of talent from the United States in order to develop their own petroleum-related industries.

In radio, TV, and communication equipment, the anomalous result probably has a great deal to do with the industry classification. This industry shows a net employment deficit in trade (i.e., it would take more American labor to replace imports than is embodied in exports) but has a low concentration of production workers (only 50 percent). Two industries make up this sector, and the ratios and trade balances (and therefore, the labor content of trade) differ significantly. In radio and TV receiving sets, total employment was 91,300 in 1982 and the ratio of production workers to total employment is higher than in all manufacturing.[32] This industry ran a trade deficit in 1982 of over $4.5 billion, which would probably mean a net deficit of trade-related employment as well. The other industry, communication equipment, employed over 569,000 workers, of which less than 47 percent were production workers, significantly below the all-manufacturing average. The industry ran a small trade surplus of $108 million; the trade-related employment balance for this industry was probably either roughly in balance or slightly positive. As a result, when these industries are pulled apart, both behave as expected, in terms of skill content and the effect of trade on employment.

One industry—office, computing, and accounting machines—had a much lower ratio of production workers than most other industries in which the amount of labor required to produce imports domestically was over 100,000 work-years. However, this industry had a net trade-related labor surplus of 216,000 work-years, reflecting the sector's trade surplus. Apparently all imports in this sector, in 1982, were office machines: typewriters, duplicating machines, weighing machines and scales, and calculators. These products are generally simpler and require fewer skills of the entire work force than electronic computing equipment, which showed a significant trade surplus. In electronic computing equipment, the ratio of production to total employment was 38 percent; in office machines, 51 percent. It is clear that this sector, like others, fits the pattern of exporting products which are more skill-intensive than imports.

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[32] In 1982, the ratio of production workers to total industry employment was just over 68 percent, slightly below the all-manufacturing average. However, 1982 was the depth of a recession; in 1981 and 1983, the ratio of production workers to total employment was significantly higher (71 and 70 percent, respectively).

On balance, therefore, as trade increases, the demand for skilled workers in the United States is expected to increase, while the demand for less skilled workers will decrease. **Displacement will hit hardest at the unskilled workers in manufacturing.**

RESPONSES TO INTERNATIONAL COMPETITION

Loss of export markets and increasing imports are among the symptoms of declining competitive ability of U.S. firms. Losses of competitive ability occur for many reasons, including failure to modernize plant and equipment, poor management leading to inefficient production, competition from low-wage countries, U.S. trade restrictions, foreign government policies which favor domestic firms or limit imports, and overvaluation of the dollar. Some losses of competitiveness may be for reasons entirely outside the control of individual industries—e.g., increasing comparative advantage in other sectors of the U.S. economy and rising competitiveness overseas. No matter what the cause of slipping competitiveness, however, efforts of firms to respond commonly cost some jobs, or at least slow the rate of employment growth.

Firms can respond to stiffer competition—domestic or international—in a variety of ways, many of which are aimed at reducing costs. Many firms automate—particularly when they face competition based largely on low foreign wage rates. To improve competitiveness, the firm usually has to raise productivity, and the method often chosen is to improve process technology. Changing product technologies—improving product function and specifications, improving quality and reliability—is also an important part of a strategy to improve productivity and regain competitiveness; many firms upgrade both process and product technologies. Yet despite their importance, the employment effects of product improvement and innovation are hard to assess; it is difficult to predict whether improved product technologies will increase markets enough to stimulate employment. Improved process technologies, on the other hand, have a predictable, negative effect on job opportunities. If firms succeed in raising productivity, fewer American workers are needed to make the same output as before. If the displaced workers can be reemployed elsewhere, the effect of the productivity increase is positive for the economy; moreover, process innovation can enable producers to sell at lower prices, increasing demand. In some cases, increased consumption is enough to maintain or increase employment, even with productivity improvement. In other cases, it is not.

Another strategy to regain competitiveness is to reorganize production on a global scale, relocating production of labor-intensive operations in low-wage nations while maintaining operations that are capital-intensive (including both human and physical capital) in the United States. Still another strategy is protection from imports. Many industries have lobbied for protection, and some have gotten it. If firms make no response to competition, or make unsuccessful responses, they may eventually go out of business. Successful responses often involve job losses too, through increased productivity or location of some jobs offshore to lower costs. However, in the long run, successful responses preserve more jobs than unsuccessful ones, and may provide the basis for generating new jobs in the future.

The responses described above, and their employment effects, are normal occurrences in any dynamic, relatively open economy like that of the United States. However, with trade becoming increasingly important to the economy and international competition becoming intense, the decisions that firms make to improve their competitive ability have increasingly profound effects on employment. The employment effects of the various responses do differ, and so, as a result, do the interests of policymakers concerned about the employment effects of international trade.

Improved Technology as a Response to International Competition

Improving process technology has several aims: to raise worker productivity to maintain high wages in industries faced with low-wage competition; to improve product performance and reliability; and to lower production costs. While automation has not always succeeded in achieving all those ends, a number of industries have chosen the high technology option, often in combination with other strategies, and some have come up winners. In other cases, automation efforts have raised productivity, but not enough to offset the advantage of producers in low-wage countries. Often, improved technology cannot alone support the wages of American workers, some of which are high only in comparison with developing and Third World wages, but quite low by U.S. standards.

The following sections explore the effects of improved technology on employment in four industries: textiles, televisions, automobiles, and apparel. These case studies help to illustrate how changing technology can reduce employment as well as preserve some jobs, and the limitations of technological change alone in maintaining competitiveness.

Automation in the Textile Industry

Investment in new capital equipment is a strategy the textile industry has used to respond to increasing pressure from imports. The textile industry is labor-intensive, and employs a high proportion of unskilled workers relative to all manufacturing. Most of its production technologies are standardized, and require relatively low capital investments. Thus the industry is a logical choice for industrializing countries with abundant low-skilled labor and limited capital.[33] The effect of competition from producers in low-wage countries is apparent: between 1972 and 1984, textile imports rose from $1.3 billion to nearly $3.8 billion, or 192 percent, while U.S. industry shipments increased more slowly, from $28.1 billion to $57.8 billion, or 106 percent.[34] The increase in textile imports has occurred despite import limits negotiated in a series of agreements with foreign producers. These began in in 1957 with a 5-year agreement limiting Japanese exports of cotton textile products to the United States, and culminated in the Multifiber Arrangement first negotiated in 1974.[35] Even with this protection, the textile industry has had to adopt a number of strategies to improve its competitive position. Both technological innovation and shifts of production to higher value-added products have been important strategies.[36]

The textile industry is rapidly moving towards greater capital intensiveness, particularly in sectors like manmade fibers, cotton weaving mills, and manmade fiber weaving mills; capital expenditures in these sectors increased at compound rates of over 10 percent per year between 1972 and 1982.[37] The investments have paid off in productivity growth. In the textile industry as a whole, labor productivity rose at 5.2 percent per year between 1974 and 1982, a greater rate of increase than in any other industry (manufacturing and nonmanufacturing) except electrical and electronic manufacturing.[38] U.S. production of manmade fiber and yarn, in particular, is internationally competitive, and its share of textile output has risen.

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[33] Stanley Nehmer and Mark W. Love, "Textiles and Apparel: A Negotiated Approach to International Competition," *U.S. Competitiveness in the World Economy*, Bruce R. Scott and George C. Lodge (eds.) (Boston, MA: Harvard Business School Press, 1985), p. 238.

[34] U.S. Department of Commerce, International Trade Administration, *1985 U.S. Industrial Outlook, Prospects for Over 350 Manufacturing and Service Industries* (Washington, DC), pp. 44-1 to 44-9.

[35] Discussion of protection in the textile industry can be found in Nehmer and Love, op. cit., pp. 239-244; and Vinod K. Aggarwal, with Stephan Haggard, "The Politics of Protection in the U.S. Textile and Apparel Industries," *American Industry in International Competition*, John Zysman and Laura Tyson (eds.) (Ithaca and London: Cornell University Press, 1983), pp. 249-312.

[36] Aggarwal and Haggard, op. cit., p. 252.

[37] *1985 Industrial Outlook*, op. cit., pp. 44-8 to 44-12.

While rising capital intensity has helped parts of the textile industry to remain competitive, it has had the predictable effect on the labor force in an industry where the dollar value of output, adjusted for inflation, has been nearly flat for a decade. In manmade fibers, total employment dropped by 30,600, or 32 percent, between 1972 and 1984; the number of production workers has fallen from 72,800 to 47,900, or 34 percent. Employment in the textile industry as a whole dropped by over 200,000 during the same period, and production employment fell from nearly 88 percent of the work force to 86.6 percent—not a dramatic drop by any means, but indicative of future trends. The long-term employment trend in the textile industry is downward.[39] The technological changes which help the competitive position of the textile industry—aimed at reducing the number of steps involved in manufacturing and reducing the amount of labor needed—are making inroads into production jobs. If the textile industry continues to respond as it has to competitive pressures, fewer workers will be needed, and more of them will be skilled.[40]

Technological Developments in Television Manufacture

Like the textile industry, the television industry has faced intensifying foreign competition and rising imports. By the mid-1960s, Japanese competition in U.S. monochrome (black-and-white) television markets was well-established. Using technologies licensed from U.S. firms, the Japanese developed lightweight, small monochrome television sets for export, and export they did. Between 1961 and 1966, the Japanese share of the U.S. monochrome TV market moved from practically nothing to 11 percent.[41] By 1982, import penetration of black-and-white televisions in the U.S. market had grown to 67.9 percent, and American monochrome TV producers could compete only in very narrow market segments.[42]

In the 1960s and 1970s, American consumers were shifting rapidly from monochrome to color television sets, and so were Japanese manufacturers. Color television imports, particularly from Japan, expanded rapidly in the late 1960s and early 1970s. By 1976, imports had captured nearly 36 percent of the U.S. market by volume (19 percent by value). The trend toward increasing import penetration reversed between 1976 and 1982, when imports of color televisions went from 36 percent of U.S. sales to only 19 percent, in numbers of units, and from 19 to nearly 13 percent by value. The difference between import penetration in 1976 and in 1982 is a direct result of U.S. trade policy. In response to a series of complaints by U.S. manufacturers, beginning in 1968, an import quota (termed an Orderly Marketing Arrangement, or OMA) was negotiated with Japan, and later extended to South Korea and Taiwan. After the OMA was adopted, imports dropped by more than half. The OMA with Japan was lifted in June, 1980, and the OMA with Korea and Taiwan expired in 1982. Since then, imports have climbed, although import penetration has not yet reached 1976 levels.

One major factor in the success of Japanese TVs in the American market was advanced technology. The Japanese, in order to penetrate the American market, relied on technical development to help overcome the lingering reputation of Japanese-made goods for poor quality. With government assistance, the Japanese developed solid-state television designs, and new technologies for stereo sound in televisions.[43] Japanese manufacturers also concentrated on automating their production processes to achieve economies of scale.[44]

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[38] Edward Rappaport, "The Textile and Apparel Industries: Economic Status and Institutional Environment," Congressional Research Service report, mimeo, Mar. 13, 1985, p. CRS-7.

[39] Figures on textile industry employment are taken from the *1985 U.S. Industrial Outlook*, op. cit, pp. 44-1 to 44-12, rather than the Bureau of Labor Statistics, which does not report separate figures for employment in both sectors of manmade fiber production, SIC 2823 and 2824. These manmade fiber sectors are in SIC 28, Chemicals and Allied Products, rather than in SIC 23, Textiles, but are usually included as pert of the textile industry.

[40] Lukas Michel, G.A. Berkstresser III, and N.A. Williamson, *Technology for the Textiles and Apparel Manufacture in the U.S.*, contractor report submitted to the Office of Technology Assessment, School of Textiles, North Carolina State University, August 1984, p. 241.

[41] James E. Millstein, "Decline in an Expanding Industry: Japanese Competition in Color Television," *American Industry in International Competition*, op. cit., p. 113.

[42] U.S. Congress, Office of Technology Assessment, *International Competitiveness in Electronics*, op. cit., p. 112.

The pressures created by imports, and the lower production costs of Japanese television sets, forced American manufacturers to respond. This response took several forms: as noted above, the industry sought and received protection; some manufacturers moved production offshore, and many responded by automating production, reducing parts counts, and shifting to solid-state designs to lower production costs and improve quality and reliability.[45] As in the textile industry, labor productivity rose. Apparent productivity increased from 150 color television sets per worker in 1971 to 560 in 1981. Between 1968 and 1981, employment in U.S. television manufacture dropped by more than half, due to the combined effects of increased productivity, offshore manufacture, and imports.[46]

The experience of the television industry exemplifies the trade-offs involved in strategic responses to international competition. In 1974, Quasar's TV operation was bought by Matsushita, a Japanese company. Matsushita made significant changes in Quasar: it automated production processes, reorganized work on the shop floor to emphasize quality control and employee participation, and moved some manufacturing operations to Mexico. While these actions cut into American job opportunities in Quasar, they did save the company, whose survival was by no means assured. As a result, several thousand U.S. jobs were saved.[47]

Automation in Motor Vehicles

The textile and television industries are examples of industries in which many firms have made strategic responses to competition during the last decade or two. The U.S. motor vehicle industry is currently trying to adapt to the same kinds of pressures. If the motor vehicle industry is successful in regaining competitiveness in some product lines, it will probably face a long period of gradually declining employment; if unsuccessful, and imports rise as rapidly as they did in the late 1970s, many more jobs will be lost.

Between 1972 and 1984, motor vehicle imports rose from less than 20 percent of domestic sales to nearly 29 percent (estimated).[48] Nearly four-fifths of all imported passenger cars came from Japan, and 98 percent of the imported trucks. Put another way, Japanese cars accounted for over 20 percent of all cars sold in the United States in 1983, while all imports amounted to 26 percent. Imported trucks accounted for 14.8 percent of all U.S. truck sales.[49] In 1986, import penetration in automobiles is expected to hit nearly 35 percent.[50]

As in the television industry, Japanese automakers based their advantage on carefully selecting a market niche—originally, subcompact automobiles—and developing superior products, by automating production, by developing effective marketing and distribution channels, and by expanding into other market segments. For several years, Japanese automakers have been able to produce equivalent cars more efficiently and with less labor than American manufacturers. This difference is referred to as the Manufacturing Cost Difference (MCD), and it is estimated to have grown from $1,500 to $2,000 per car in 1979-80 to $2,000 to $2,600 in 1985.[51] Part of the difference—about $500—is probably due to the strength of the dollar against the Japanese yen, but most is due to differences in unit labor costs, which includes differences in productivity as well as wages and salaries for white- and blue-collar workers.

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[43] Ibid., p. 181.

[44] Millstein, op. cit., p. 120.

[45] U.S. Congress, Office of Technology Assessment, *International Competitiveness in Electronics*, op. cit., pp. 184-5.

[46] Alic and Harris, op. cit., p. 12.

[47] This paragraph depends heavily on Alic and Harris, op. cit., p. 12.

[48] Figures cited in Robert Scott, "Motor Vehicles," contract report to the Office of Technology Assessment, Apr. 29, 1985, p. 13.

[49] U.S. Department of Commerce, *The U.S. Automobile Industry, 1983*, Report to the Congress from the Secretary of Commerce, December 1984. Pp. 7, 13.

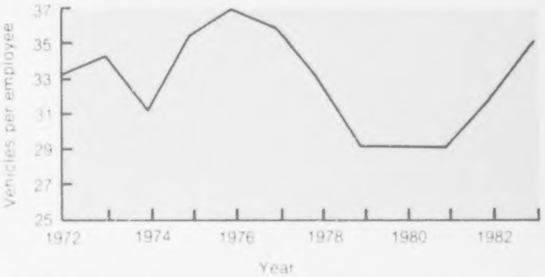
[50] Personal communication with John Hartmann, Automotive Industry Analyst, International Trade Administration, Sept. 19, 1985.

[51] Scott, op. cit., pp. 2-3; and John Hartmann, Automotive Industry Analyst, International Trade Administration, personal communication, Sept. 20, 1985.

The U.S. motor vehicle industry has chosen several strategies to respond to the competitive pressure: increased offshore manufacture of vehicles, parts and subassemblies; efforts to reorganize shopfloor operations and increase employee involvement; asking for (and getting) trade protection; establishing joint ventures with foreign producers; reducing labor costs; putting greater pressure on suppliers to cut costs; redesigning products; and automating domestic manfuacturing.

Capital investment in the auto industry is unprecedently high. Between 1978 and 1985, the U.S. automakers invested $84 billion worldwide in plant, equipment, and special tools (excluding design); from 1970 to 1977, investment was $32 billion. Most of this investment—it is not possible to tell exactly how much—has been in the United States.[52] In the next 5 years, the industry is planning to invest an additional $100 billion in plant, equipment, special tools, and design worldwide.[53] A major thrust of this investment is automation: such things as increased use of computer control in vehicle design and development, production, and testing, increasing the use of robots, and other forms of assembly automation. General Motors, for example, recently acquired Electronic Data Systems (EDS), shifted its own data processing people to EDS, and put EDS to work streamlining and improving GM's data-processing systems.[54] These changes have not yet shown significant results in worker productivity (figure 9-5). The number of vehicles produced per employee in U.S. auto assembly peaked in 1977, at nearly 37 units per worker, and fell to only 29 units per worker by 1979; in 1984, the figure was 35.2 units.[55] Part of the reason for the decline in apparent productivity in the late 1970s was the increase in the complexity of the average vehicle, as well as loss of much of the bottom end of the market—compacts and subcompacts —where vehicles are simpler. Much of the improvement in productivity between 1980 and 1984 was due to increasing capacity utilization rather than technological improvement. Technological advance probably was a factor in raising productivity in automotive parts and stampings, however, as parts manufacturers shifted to numerically controlled and computer numerically controlled machine tools.[56] The investments the auto industry has made are expected to raise productivity in the future by around 5 percent per year, while domestic production and sales probably will expand more modestly. Employment in automobiles peaked in 1979, at over 1 million workers. By 1982, due to the combined effects of recession and foreign competition, auto employment had fallen below 700,000. Employment has recovered to 865,000 by October 1985 (seasonally adjusted), but will likely remain substantially below its peak in the late 1970s, and probably will continue a long-term, gradual decline.

Figure 9-5.—Apparent Labor Productivity in U.S. Motor Vehicle Assembly: 1972-84 (SIC 3711)



SOURCE: Robert Scott, "Motor Vehicles," contractor report prepared for the Office of Technology Assessment, April 1985, p. 16.

The employment decline will affect different workers differently. Increased use of automated equipment has already increased the proportion of skilled workers relative to production workers in automobile assembly from 1:5 in 1978 to 1:4 in 1984, a trend which is likely to continue.[57]

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[52] Hartmann, op. cit.; and Kerry Lanham, International Trade Administration, personal communication, Sept. 19, 1985.

[53] Ibid.

[54] Michael Brody, "Can GM Manage It All?" *Fortune*, July 8, 1985, pp. 22-25.

[55] Scott, op. cit., p. 16.

[56] Ibid., p. 17.

[57] Ibid., p. 40.

Automation in the Apparel Industry

The apparel industry is one of the most labor-intensive in all manufacturing. Moreover, nearly 85 percent of its work force consists of production workers. Of the total labor force in apparel (SIC 23), over 40 percent are sewing machine operators—a job which can be learned quickly. Partly because of low skill requirements, and partly because of intense competition in the industry, apparel workers' wages are very low: in 1984, production workers in apparel made just $5.55 per hour, compared to $9.18 in all manufacturing. The work force in the apparel industry is over 80 percent female, nearly 20 percent minority, and relatively uneducated. In 1975, one-third of all people in the apparel industry had not completed the ninth grade.[58]

Capital requirements in the apparel industry are also low relative to other manufacturing. In 1979, the capital stock per hour worked in the apparel industry was $2.98, compared to an average of $16.28 in other manufacturing industries.[59]

This is the kind of industry most vulnerable to foreign competition. Low capital requirements and heavy reliance on low-skill workers gives poorer countries a distinct cost advantage over American producers. Apparel wages, by U.S. standards, are not at all generous, and have declined by 16 percent between 1968 and 1982 in real terms. However, unskilled workers making over $5 per hour in the United States still look expensive compared to workers in Southeast Asia, Latin America, and other developing and Third World countries (table 9-4). Productivity differences only partially reduce the gap between the U.S. and low-wage producers; the American Apparel Manufacturers Association estimates that U.S. productivity is generally 35 to 100 percent greater than that of workers in less developed countries, while wage differentials are often much greater.[60]

Table 9-4.—Apparel Industry Wage Rates in Selected Countries, 1982

Country	Hourly wage	Wage + fringe	Index
United States	5.20	6.50	100
Hong Kong	1.80	2.05	32
Taiwan	1.50	1.75	27
Korea	1.00	1.25	19
Singapore	0.90	1.35	21
Philippines	0.40	0.50	8
China	0.20	0.30	5
Jamaica	0.75	0.95	15
Costa Rica	0.60	0.80	12
Haiti	0.30	0.40	6
Mexico	NA	1.68	26
Portugal	1.20	1.50	23
Egypt	0.40	0.55	8

NA—Not available or applicable?

SOURCE: Carol Parsons, "The Employment Effects of International Trade in the Apparel Industry," contractor report prepared for the Office of Technology Assessment.

Apparel makers have responded to the increase in foreign competition by keeping up the pressure for protection, moving production to low-wage nations, shifting to product lines in which the foreign advantage is least,[61] and, to some extent, automating. However, compared with the other industries considered above—textiles, motor vehicles, and televisions—automation in apparel manufacture is not likely to make as much difference in the competitive position of U.S. manufacturers. It would require a very substantial labor-saving technical breakthrough to offset the large labor cost advantages of foreign producers. While research aimed at such a breakthrough is underway in the United States, the Japanese have invested much more, leaving the likelihood that the United States will capture the advantages of new automation open to doubt. Also, if automated equipment is to confer a great advantage on the United States —enough to offset the advantages low-wage countries now hold—it would have to greatly raise labor productivity *and* either require skilled people to operate it, or require a large capital investment which poorer countries could not afford.

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[58] Figures cited in Parsons, op. cit., p. 6.

[59] U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States: 1984* (Washington, DC: U.S. Government Printing Office, December 1983), pp. 542-543. Figures are in 1972 dollars.

[60] Parsons, op. cit., p. 26.

[61] For example, many types of outerwear, such as women's dresses, are very sensitive to fashion changes, and the advantage in these markets often goes to the producer who can get a new line of clothing to retail outlets most quickly. In this case, foreign producers may be at something of a disadvantage; while verbal communication between fashion centers like New York and production locations like Southeast Asia is very rapid, it may take somewhat longer to transfer information on the type and weight of fabric, color, and design details which is more difficult to do verbally.

So far, technology has done little to offset the differences in labor costs (wage rates weighted by productivity) between the United States and low-wage countries. In the 1960s, new technologies for synthetic fibers, developed in the United States, lowered material prices and gave the U.S. apparel industry a short period of competitive advantage. Synthetic fiber production, however, was adopted fairly rapidly in low-wage countries, and perversely, the lower prices of manmade fibers accentuated international differences in labor costs, further eroding the competitive position of the American apparel industry.[62] Automation in stages of apparel production other than sewing—pattern grading or cutting; fabric cutting, and fabric marking—have helped to raise productivity, but all these activities apply to production processes which account for less than 5 percent of total labor costs.

While some promising technologies are on the horizon, apparel making will remain relatively labor-intensive for the foreseeable future. New technologies include computer-aided design of garments and patterns; improved programmable cutting equipment; computer-controlled handling of work in process; computer networks between suppliers, manufacturers, and retailers; automated sewing; and automated packaging. Some technological changes have been made; in the late 1960s, the automatic sewing machine (or numerically controlled sewing machine) increased sewing speeds and improved the uniformity of sewing—and thereby improved the quality of the product. These machines made it possible to reduce significant amounts of labor in some operations—e.g., automatic inside sewing of shirt collars reduces labor by 64 percent—but these machines could handle only certain relatively simple sewing operations. Moreover, they are dedicated equipment, which cannot be adapted for new tasks. For these reasons, automatic sewing machines are used for a minor share of sewing in the U.S. apparel industry, and the industry has remained very labor-intensive. To date, none of the technological improvements made in the apparel industry have reduced labor intensity enough to overcome the advantage of the low-wage producers.

Although a major new effort is underway in the United States to produce a new machine which will automatically load, fold, and sew limp fabric, the effort is not very well-funded compared with a Japanese effort with the same objective. The project is taking place at Draper Laboratories in Massachusetts, supported by the Textile and Clothing Technology Corp. (TC^2). Corporation members include many textile and clothing firms,[63] the Amalgamated Clothing and Textile Workers Union, and the Department of Commerce. With about $2 million funding from TC^2 since 1981, Draper has produced a machine which has shown some promise in a field test.

Whether this machine, or future developments like it, will be successful in boosting the competitiveness of much of the U.S. apparel industry is uncertain. A major question about the eventual impact of TC^2 arises because of its relatively low level of funding ($2 million dollars over 3 years). In comparison, Levi Strauss invested $5.5 million in research and development in 1983 to produce innovations which automated the sewing of belt loops and the bottoms of blue jeans legs. This strategy was not effective for Levi Strauss, not because of any failure of technology, but because the demand for blue jeans faded.[64] The Draper project is also underfunded compared with an effort mounted by the Technology Research Association of Automated Sewing of the Japanese Ministry of International Trade & Industry (MITI). This project—a Japanese version of TC^2—was begun in 1983; its mission, similar to that of Draper's, is to automate apparel manufacture, particularly for small production quantities. The MITI effort is planned to last until 1989 and has a commitment of $40 to $60 million behind it.

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[62] Parsons, op. cit., pp. 9-10.

[63] These firms include Hart Schaffner and Marx, Genesco, Burlington Menswear, Du Pont, J.P. Stevens, and Surgikos Divison of Johnson & Johnson.

[64] Parsons, op. cit., p. 54.

Past innovations in the apparel industry have shown no particular attachment to the United States. In many industries, automation improves the competitive position of American producers, either because it increases the need for skilled operators, maintenance people, technicians and professionals in manufacturing processes, or because the capital investment required for efficient production is prohibitively high for poorer nations. So far, innovations in the apparel industry have done neither. Numerically controlled sewing machines are now used offshore, and the spread of this and other technologies has helped to reduce the difference between U.S. and Third World productivity in apparel.[65]

Whatever the success of the effort to automate apparel manufacture, the long-term outlook for apparel employment is for further gradual decline at best. With increasing import pressure, and only slowly growing demand, the prospects for anything but employment decline in the long term are dim.

Reorganizing Production on a Global Scale: Manufacturing Offshore

Another major strategy adopted by firms facing stiffer international competition is to reduce costs by seeking low-cost areas for production. For many companies, this has meant reorganizing production on a regional or global scale, locating production facilities in areas which offer the best chances of sustaining production cost advantages. Locating manufacturing facilities abroad to penetrate foreign markets is nothing new; according to one source, Samuel Colt located Colt's Repeating Arms Manufactory in London in 1852.[66] By 1914, U.S. companies had $478 million worth of investment in foreign manufacturing, mostly in Europe and Canada.[67] What distinguishes past overseas investment in manufacturing from today's is the motive: in the past, investments were usually made in order to penetrate foreign markets where exporting would have been difficult, or in order to take advantage of certain natural resources (e.g., tropical hardwoods) which were unavailable in the United States. While these motives are still important reasons for overseas investment, a major reason, increasingly, is to supply the U.S. market more cheaply. Manufacturing in foreign locations for export either to the home country—in this case, the United States—or to third-country markets is a relatively new feature in the landscape of U.S. foreign investment, emerging as a major strategy as late as the 1960s.[68] Moreover, in some sectors, contracting with foreign firms to supply all or part of products designed for the home market is becoming a more common strategy for survival and competitiveness.

One form of offshore assembly, termed outward processing, works as follows. U.S. producers make part of a product, and then ship it, in unfinished form, to a foreign plant for additional work. The product is then re-imported into the United States for sale or further processing, with tariffs levied only on the foreign value-added. This kind of import is often termed an 806/807 import, after items 806.30 and 807.00 in the Tariff Schedule of the United States (TSUS) which permits the activity.[69] Between 1966 and 1983, 806/807 imports increased in total value 20 percent per year, from $953 million to over $21 billion (figure 9-6). The foreign value-added increased slightly less rapidly, at 19 percent per year. In 1966, the vast majority—94 percent—of these imports were from developed countries like West Germany and Canada. Since then, the newly industrializing countries have increased their shares of 806/807 imports rapidly. From 1977 to 1983, the share of 806/ 807 imports coming from developed countries accounted for 55 to 57 percent

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[65] Ibid, pp. 50-51.

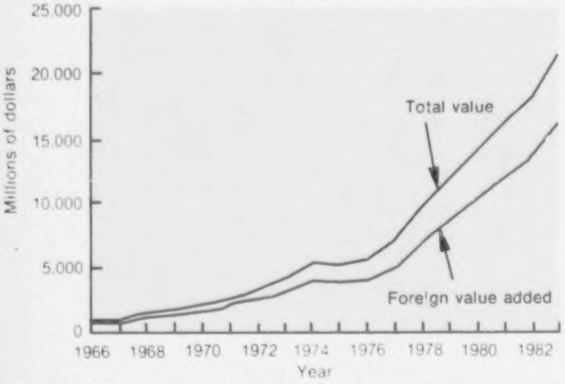
[66] Tadakatsu Inoue, "A Comparison of the Emergence of Multinational Manufacturing by U.S., European, and Japanese Firms," in Akio Okochi and Tadakatsu Inoue (eds.), *Overseas Business Activities*, Proceedings of the Fuji Conference (Japan: University of Tokyo Press, 1984), p. 15.

[67] Tadakatsu Inoue, op. cit., p. 3.

[68] Joseph Grunwald and Kenneth Flamm, *The Global Factory: Foreign Assembly in International Trade* (Washington, DC: The Brookings Institution, 1985), p. 3.

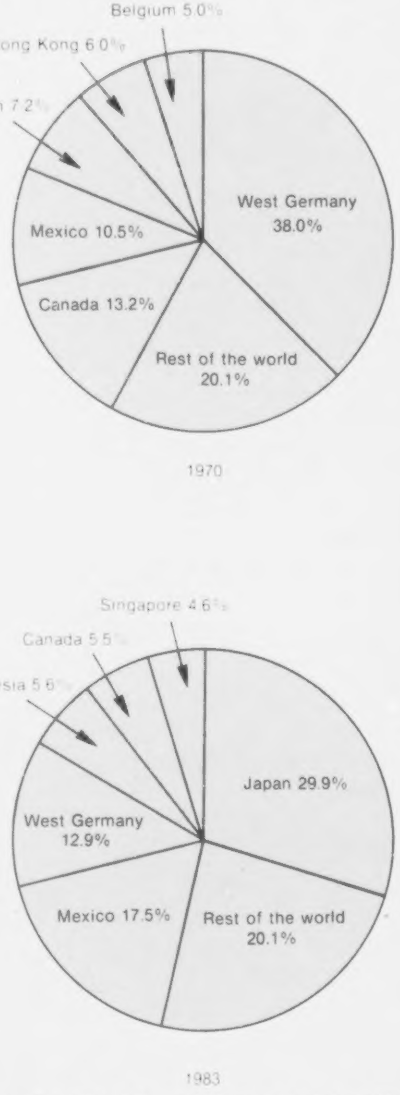
[69] Item 806.30 includes only metal items which have been manufactured or processed in the United States, exported for foreign processing, and returned. Item 807.00 includes everything else.

Figure 9-6.—U.S. Imports Under Items 806/807



SOURCE: U.S. International Trade Commission, *Imports Under Items 806.30 and 807.00 of the Tariff Schedules of the United States, 1980-83*, April 1985, p. 100.

Figure 9-7.—Principal Sources of Imports Under Item 807, 1970 and 1983



SOURCE: U.S. International Trade Commission, *Imports Under Items 806.30 and 807.00 of the Tariff Schedules of the United States, 1980-83*, April 1985, p. 23.

of the total. Figure 9-7 also illustrates the increasing importance of production in newly industrializing countries such as Malaysia, Singapore, and Mexico in 807 imports. Japan has rapidly taken a greater share of 807 imports into the United States, replacing West Germany as the largest source.[70] Motor vehicles predominate among the products imported under TSUS 807, accounting for 62 percent of total 807 imports. Other products making up a significant share include semiconductors and parts, televisions and parts, office machines, and apparel.

The prime reason for foreign assembly of products meant for home or third country markets is to save on labor costs, especially in production processes that do not require high proportions of skilled labor. In some offshore locations, lower productivity accompanies the lower labor costs, which partly offsets the effect of lower wages; but often the wage differentials are great enough to make up for lower productivity. Moreover, for some operations in some locations, productivity may be greater than in the United States.

Changing the location of production within the United States to find lower labor costs is not a new strategy; leaving the country to reduce labor costs is a newer development. In the United States, for example, textile producers migrated to the South from the industrial Northeast to find lower wages and non-union labor. Even in service industries, where "production" is often physically inseparable from consumption, automation has made it possible to shift certain operations to lower wage areas to save on labor costs. For example, a California insurance company, in the process of automating claims processing, shifted this job from a unionized city office to more rural, nonunionized areas of California, where costs, especially wages, were lower. Modern telecommunications made the shift possible.

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[70] Figures cited in this paragraph are from U.S. International trade Commission, *Imports Under Items 806.30 and 807.00 of the Tariff Schedules of the United States, 1980-83*, USITC Publication 1688, April 1985, pp. 15-29.

U.S. producers are by no means the only ones engaged in international reorganization of production. As the Japanese economy prospered, productivity and wage rates rose, making Japan a high-cost producer relative to much of the rest of Asia in many labor-intensive processes. In response, the Japanese, too, have transferred some manufacturing operations to lower wage countries: in 1978, three of Japan's largest firms had assembly operations in Mexico. Interest in Mexican assembly operations in a variety of industries on the part of many industrialized nations, including many European nations, is growing.[71]

In some cases, American companies—for example, automakers and semiconductor manufacturers —have invested in offshore facilities and obtained majority or minority interests. In others, American producers contract with foreign manufacturers for low-cost products which are then marketed under the label of the U.S. company. Automakers and apparel manufacturers have both used this strategy.

There is no question that offshore assembly and manufacturing of products for home or export markets cost American jobs, although there is not a one-for-one correspondence between the number of jobs in offshore operations and the number of jobs lost in the United States. Since it is the operations which involve the greatest reliance on low-skill labor which are most likely to go offshore, the workers most vulnerable in strategic decisions to move production offshore are—like workers affected both by changing process technology and increased imports—less skilled production workers in manufacturing.

Like other strategic responses to increased international competition, however, the decision to move some operations offshore or contract with lower cost foreign producers can save more U.S. jobs than going out of business altogether, but only if offshore production is effective at improving competitiveness.[72] In the earlier example of Matsushita's acquisition of Quasar, one of the several interconnected strategies was to move some operations to Mexico. This move was probably instrumental in Quasar's survival, and the preservation of many jobs in Quasar's U.S. operations. Offshore production is an important part of a long-term competitive strategy for American producers in a widening variety of industries. To the extent that any strategy is successful in improving competitiveness, there will be more jobs for Americans than if firms and industries wither.

Offshore Production in Semiconductors

The semiconductor industry is a quintessentially high-technology industry, on which many hopes for future growth and innovation rest. Overall, the industry employed over 280,000 Americans in May 1985. It has been one of the fastest growing manufacturing industries in the United States. While it experienced a cyclical slump in late 1984 and 1985, its long-term growth prospects are solid; demand for semiconductor devices is expected to grow at 19 percent per year through 1990.[73]

While its prospects are good, the semiconductor industry has been hurt by the high value of the dollar and the current downturn in the market for semiconductors. The current weakness is probably temporary, however, as growth in telecommunications and computer markets boost demand for semiconductors. The trade balance in semiconductors, historically a surplus, became a deficit in 1982, largely because of offshore production.[74]

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[71] Grunwald and Flamm, op. cit., p. 150.

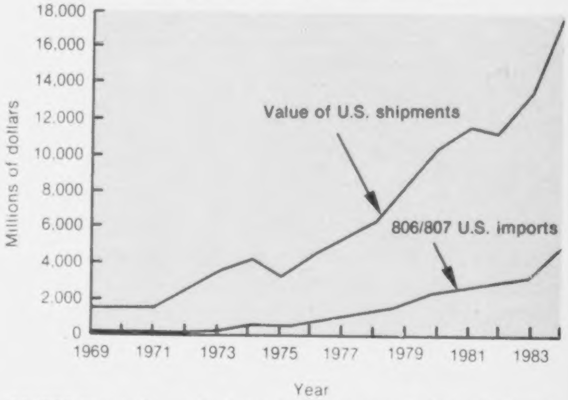
[72] Not all countries are good sites for offshore production facilities; many operations cannot be moved offshore to save money. In general, only operations which rely mostly on unskilled labor are good candidates, and even then, productivity is so much lower in some countries that even very low wages cannot make up for it.

[73] The 19 percent figure includes expected annual growth of 20 percent per year for the worldwide merchant semiconductor market and 15 percent per year in captive semiconductor production. Merchant production includes semiconductors that are made and sold as inputs to other firms which produce equipment—e.g., computers, office equipment, and appliances—which incorporate semiconductors. Captive production refers to semiconductors which are made for in-house use. Source: Carol Parsons and Jay Stowsky, "The Effects of International Trade on Employment in the Semiconductor Industry," contract report for the Office of Technology Assessment, May 17, 1985, p. 3.

Besides providing rapidly growing employment at home, the semiconductor industry also pioneered the movement of assembly overseas. Because of its youth, compared to older industries like motor vehicles, textiles, and apparel, many of the semiconductor industry's products mature fairly quickly, and competition from foreign producers is well-established. However, it was intense domestic competition that initially caused U.S. producers to move labor-intensive operations offshore. The move began in 1964 with the establishment of a plant in Hong Kong by Fairchild. By the end of the 1960s, over 50 foreign semiconductor manufacturing plants had been established, mostly in low-wage Asian nations like Hong Kong, Taiwan, Singapore, and Korea.

Since then, imports of semiconductors—including 806/807 imports from foreign affiliates—have expanded even more rapidly than U.S. production (figure 9-8). Between 1969 and 1984, U.S. shipments of semiconductors grew 17.5 percent annually, while imports rose by over 30 percent per year. The portion of imports under TSUS 806/807 went up by 27.7 percent annually.[75] By 1984, including 807 imports, the value of the foreign content of 807 imports totaled 28 percent of U.S. shipments. All semiconductor imports, including 807 imports, totaled 44 percent of U.S. shipments. About 50 percent of all merchant semiconductors in the U.S. market come from 806/807 imports, mostly from Southeast Asian countries (table 9-5). Low wages in these countries give producers a cost advantage.

Figure 9-8.—806/807 U.S. Imports and U.S. Total Shipments of Semiconductors



SOURCE: Kenneth Flamm, *The Global Factory* (Washington, DC: The Brookings Institute, 1985), p. 74; and 1982 Census of Manufacturers, preliminary statistics for SIC 3674.

Table 9-5.—Imports of Semiconductors Under TSUS 807.00, 1983

Country	Value of imports ($000)	Value of U.S. components ($ million)
Japan	11,011	6.3
Malaysia	1,063,689	649.3
Singapore	371,917	208.2
Philippines	633,173	426.4
Republic of Korea	487,504	38.6
Taiwan	138,958	56.9
Total, Asia	2,706,252	1,665.7
Mexico	160,741	48.9
West Germany	5,259	3.4
Canada	126,842	83.5

SOURCE: U.S. International Trade Commission, *Imports Under Items 06.30 and 807.00 of the Tariff Schedules of the United States, 1980-83*, USITC Publication 1988, April 1985, pp. 127-156.

Information on production-worker wages in other countries is sparse, but some comparisons are possible. By one estimate, total manufacturing costs can be reduced 50 percent by sending assembly offshore to Far Eastern and Latin American plants; in 1973, assembly of one kind of integrated circuit cost less than half as much if assembled in Singapore than if assembled in the United States.[76] Another estimate from the mid-1970s was similar: total manufacturing costs of simple integrated circuits or discrete devices, with offshore assembly, were about $0.15 per device at that time, while, with domestic assembly, costs were $0.35 to $0.60, depending on the ratio of U.S. wages to offshore wages.[77] The cost differential was not as great—15 to 28 percent—for large-scale integrated circuits; these are currently taking larger shares of the market.[78] However, costs still favor foreign assembly, and some companies have found that it is possible to achieve significant labor cost savings by sending more skilled types of work offshore. While labor-intensive operations still dominate in U.S. offshore affiliates, a few companies have found that the engineering and technical support needed to do increasingly complex circuit testing can be obtained offshore at much lower prices than in the United States. There has been some speculation that more complex testing, which requires skilled people to write software, maintain testing equipment, and execute tests, could bring testing operations back to the United States, but so far, experience has shown that this kind of work can be done adequately in countries like Singapore and Malaysia.[79]

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[74] U.S. Department of Commerce, *1985 U.S. Industrial Outlook*, op. cit., pp. 32-3 to 32-10.

[75] Figures are cited in Parsons and Stowsky, op. cit., p. 15a. Figures for 1984 production and imports are estimates.

[76] William Finan, *The International Transfer of Semiconductor Technology Through U.S. Based Firms*, National Science Foundation, 1975, p. 23. Cited in Parsons and Stowsky, op. cit., p. 11.

The main advantage of offshore manufacturing, however, is still in labor-intensive operations. This shows up in employment figures; worldwide, U.S. firms employ only about three-quarters as many people as they employ in the United States, but 80 percent of offshore employment consists of production workers. In the United States, production workers are only about 40 percent of semiconductor industry employment.[80]

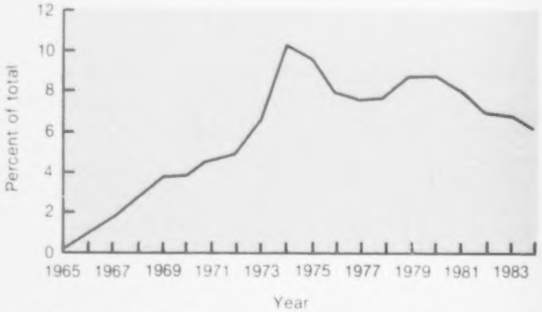
Offshore Production in Apparel

In 1983, 807 imports of apparel and footwear totaled $745 million, or 4.6 percent of all 807 imports. Although the apparel industry's share of 807 imports is modest, offshore production is an important part of the strategy of apparel producers. Imports of items under TSUS 807 have increased much faster than apparel imports as a whole, between 1965 and 1974. Since 1974, the share of 807 imports has fallen (figure 9-9).

TSUS 807 allows apparel firms to send fabric overseas for operations like sewing, hemming, or stitching which do not change the form of the basic product.[81] While the bulk of U.S. apparel imports come from Southeast Asia, most 807 imports come from Latin America, with Mexico as the largest supplier. Of all 807 imports of apparel and footwear, 31 percent came from Mexico, and 19 percent from the Dominican Republic. Other major suppliers included Haiti, Costa Rica, the Philippines, Colombia, Honduras, Barbados, and Jamaica. One reason for the predominance of Latin American countries among the sources of 807 imports is that, unlike Far Eastern producers, Latin American countries are relatively high-cost producers of textiles. However, their low wage rates make them attractive apparel producers using U.S.-made fabrics. Asian producers, with their lower textile costs, are more likely to produce both textiles and apparel domestically and export to the United States.[82]

Like semiconductor manufacturers, apparel producers began sending production offshore in the 1960s. In 1965, the value of 807 apparel

Figure 9-9.—Percent of U.S. Imports of Apparel Under Item 807



SOURCE: International Ladies Garment Workers Union, Research Department, February 1985.

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[77] The lower domestic assembly cost is associated with a ratio of U.S. wages to foreign wages of 5:1; the higher estimate with a ratio of 10:1.

[78] U.S. Congress, Office of Technology Assessment, *International Competitiveness in Electronics*, op. cit., p. 514.

[79] William Finan, Quick, Finan Associates, personal communication, Sept. 23, 1985.

[80] Alic and Harris, op. cit., p. 14.

[81] Parsons, op. cit., p. 43.

[82] Grunwald and Flamm, op. cit., p. 18.

imports totaled $1.7 million; afterwards, these imports rose nearly 38 percent per year, much more rapidly than 807 semiconductor imports. The most labor-intensive operation—sewing—is most commonly sent offshore to take advantage of foreign labor costs, which are commonly 5 to 10 percent of U.S. labor costs in many Latin American countries.

Offshore production of apparel is expected to continue to grow as U.S. producers become more experienced at managing offshore facilities. In the past, some firms have had mixed experiences with offshore production. For example, Casualwear, a producer of women's clothing, found that a small joint venture made in Haiti in the 1960s was not paying off. Low productivity and high labor turnover offset the advantage of extremely low Haitian wages of $1 per day, and the cost of clothes produced in Haiti and shipped to the United States cost 90 percent of what they would have cost if made in America. Casualwear tried again, moving to a facility which straddled the U.S.-Mexican border, and had 20 to 30 percent of its output sewn in Mexico. This venture was more successful, and production costs came down.

Other apparel firms—particularly bigger ones —have also learned how to manage offshore production. Several of the largest apparel firms, including Manhattan Industries, Philips-Van Heusen, Warnaco, and Kellwood—import 30 percent of their products, some from 807 plants and some from foreign-owned facilities under contract. Liz Claiborne, the largest producer of women's apparel in the world, does not manufacture any of the clothes it sells. Production is contracted out to over 70 domestic and foreign producers, while the company specializes in design and marketing. Nearly 70 percent of the company's products are made abroad, mainly in Hong Kong, Korea, and Taiwan.[83]

While offshore production has been a rewarding strategy for some U.S. apparel producers, the strategy could prove less successful in the long run than in some other industries. For example, the front-end operations in semiconductors—research and development of new products, design, and pilot production—are heavily skill-intensive, requiring large proportions of highly educated and talented people (such as electrical engineers). The costs of educating these people are high; it is difficult for poor countries. Front-end operations in apparel production also involve design, but the emphasis is less on education than on artistic ability, talent, and creativity. While these skills are not commonplace, the United States has no monopoly on them, as the recent international success of Japanese fashion designers illustrates. It may be easier for foreign manufacturers of apparel to find talented designers for their own industries than to find the engineering and scientific talent needed to erode the U.S. advantage in complex electronic circuitry. Moreover, it is fairly easy for anyone—including foreign manufacturers—to copy the designs of clothing on the racks in retail outlets, and produce similar clothing quickly.[84]

Offshore manufacturing, subcontracting abroad, and expanding imports all mean fewer jobs in the apparel industry. Unlike the demand for semiconductors, demand for apparel is growing very slowly. In such a market, greater use of foreign labor will continue to reduce U.S. apparel employment; the only real question is how rapidly. Without protection, apparel employment probably would have declined more rapidly than it has.

Whatever the rate of job loss, the most affected workers are the less skilled, predominantly sewing machine operators. Over 40 percent of the approximately 2 million workers in the apparel industry—i.e., nearly 500,000 people in 1984—operate sewing machines.

Offshore Manufacture in Telecommunication Equipment

Telecommunications is a high-technology sector which, like the computer and semiconductor industries, has transformed both economic and social life in the United States. In 1983, telecommunication equipment and services was a $116 billion market (3 to 4 percent of GNP). It is expected to reach $300 to $400 billion by the early 1990s.[85] The world market for telecommunication equipment alone (not including services) was about $50 billion in 1984, with the United States accounting for over one-third of world production.

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[83] The information in the preceding two paragraphs is taken from Parsons, op. cit., pp. 44-45.

[84] Parsons, op. cit., p. 46.

Telecommunication equipment consists of three kinds of products: 1) terminal equipment in the customer's office or house (referred to as Customer Premises Equipment, or CPE), which includes telephones and facsimile machines; 2) transmission equipment, such as coaxial cable or communication satellites, which carry signals between terminals and switching centers; and 3) switching equipment, which routes signals or calls between terminals. Most switching facilities are located in telephone company facilities, but some—Private Branch Exchanges, or PBXs—are located in customer facilities. For example, large offices sometimes have central switchboards to route incoming and outgoing calls. The United States produces nearly 39 percent of the world's switching equipment, 37 percent of its transmission equipment, and 19 percent of its terminal equipment.[86]

Advanced telecommunication equipment resembles other high-technology sectors like semiconductors and computers in several ways. The United States was and continues to be a major source of new innovations and applications, and much of the advanced research and development is done here. Telecommunication equipment changes fairly rapidly, and product life cycles are short compared with some other manufactured products. Nonetheless, foreign competition is rapidly becoming an important consideration.

Between 1980 and 1983, U.S. trade in telecommunication equipment went from a surplus of over $400 million to a deficit of nearly $650 million. The strong dollar was a major factor in the deterioration of the trade balance, but low-cost foreign competition in many less sophisticated products, such as telephone handsets, was well-established before the rise of the dollar. Another major factor in the rapid rise of imports was the relative openness of the U.S. market;[87] a series of legal decisions opened the U.S. market for customer premises equipment. Foreign penetration of the market began after 1968, when the Federal Communication Commission's *Carterphone* decision allowed the hookup of non-AT&T equipment to the network of the Bell System. This opened the market to foreign producers, although the monopoly that AT&T/Western Electric equipment then held took some time to dissolve. By the time AT&T was broken up in January 1984 by court decision, a result of a Justice Department Antitrust suit, the competition in CPE had already taken hold. Western Electric, AT&T's equipment manufacturer, lost market share in almost all types of telecommunication equipment in the 1970s and 1980s.

As both domestic and foreign competition have intensified American telecommunication equipment manufacturers have used a variety of strategies to cope with it. Some producers, in some product lines, have chosen to compete on a basis other than price, offering sophisticated products with a variety of features (including service) not duplicated by other manufacturers. Many producers have automated equipment manufacture. Some, particularly producers of equipment which embody standard electronic components, have moved production of these components to low-wage areas, or have imported both standardized components and raw materials from offshore producers.

Comdial, a manufacturer of high-quality telephone handsets, has done these things. Comdial used its expertise in semiconductors to enter the market for specialized telephones. In 1982-84, Comdial automated its manufacturing processes to reduce costs, increasing its engineering staff fivefold and reducing its dependence on production labor.[88] Parts of its manufacturing process, however, are still labor-intensive. In 1983, Comdial moved its manufacturing operation from Charlottesville, Virginia, to Shenandoah, 40 miles away. Even this short move allowed the company to reduce its labor bill while keeping close communication with Charlottesville headquarters. For several reasons, Comdial chose not to move production to the Far East. According to a company representative, quality of Far Eastern handsets is improving and production costs are lower, but the advantage is not yet great enough to justify paying the tariff on Asian imports. Moreover, customer requirements for quick servicing and upgrading of equipment also weigh against Far Eastern producers, for it would take too long to send equipment back to Asia for repairs and upgrades. However, Comdial does buy raw materials and standardized electronic components—e.g., integrated circuits, capacitors, and resistors—from offshore producers, because the prices are lower than the cost of Comdial's manufacturing these components itself.[89]

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[85] Jay Stowsky, "The Employment Effects of International Trade in the Telecommunications Equipment Industry," contract report for the Office of Technology Assessment, Apr. 19, 1985, pp. 6-7.

[86] Ibid., p. 6.

[87] U.S. duties on telecommunications equipment vary from zero to 9 percent, substantially lower than tariff barriers of most of the rest of the world. Canada and the United Kingdom, which have liberalized their markets, are exceptions to the general pattern of tight protection. Source: Stowsky, op. cit., p. 62.

Another illustration of the kinds of decisions producers of telecommunication equipment face in locating manufacturing facilities is in PBX manufacture. PBXs are normally tailored to fit customer specifications, and most customers for U.S. firms are in the United States. Although price competition is important, competitive success in the PBX market depends more on product flexibility, reliability, and features. Software, written to fit the specifications of individual customers, has become a significant part of the PBX. As a result, when customized features are added, producers almost always locate final assembly close to the customer. Even foreign manufacturers have set up final assembly plants in the United States to serve their American customers. However, like high-quality handsets, PBXs incorporate standardized parts that can be obtained from foreign producers at lower costs. One manufacturer, Rolm, buys many of these commodity products[90] from outside vendors. Another PBX manufacturer, Mitel of Canada, makes its custom integrated circuits in Vermont, assembles printed circuit boards in Puerto Rico, and does final assembly for the U.S. market in Florida.

The growth in markets for high-quality, flexible telecommunication equipment and the pressures for locating production close to the customer should mean continued employment growth in the United States. However, as products become more standardized and price competition intensifies, the pressures to lower manufacturing costs will increase. The pressure will be felt most by low-skilled production workers. Between 1977 and late 1985, with intensifying competition in telecommunication equipment, the proportion of production workers in the telephone and telegraph apparatus equipment industry dropped from 68 to less than 62 percent; the absolute number of production jobs fell by over 16,000. In 1983, the telecommunication industry experienced its first trade deficit. The largest portion of the deficit was in CPE, where most imports are low-end, standardized handsets in which labor costs are a significant factor in the ability to compete internationally. Even though the telecommunication industry will continue to employ larger numbers of people, most of them are, and probably will continue to be, well educated and highly skilled. In some standardized equipment, the effects of low-wage foreign competition can already be seen. AT&T recently announced that it planned to lay off 24,000 employees from its computer and telecommunication equipment work force in order to cut costs.[91] Over 1,800 of the layoffs came from a plant in Shreveport, Louisiana, where AT&T manufactured telephone handsets. One of AT&T's decisions was to move production of residential handsets (telephones) to Singapore, which will almost certainly displace many workers. Although AT&T has announced that it will try to find new jobs in AT&T for its laid-off workers, it is unlikely that all of the 24,000 people AT&T is laying off, or even all of the 1,877 workers laid off from the Shreveport plant, can be placed. The layoffs have hit managers and professionals as well as production workers, but apparently nearly 69 percent of the workers AT&T laid off were production workers, while the average for the overall industry is less than 62 percent. The telecommunications industry as a whole should continue to create many new jobs, mostly for skilled, professional people; opportunities for low-skilled or semiskilled production workers will be much more limited.

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[88] Since November 1983, Comdial has laid off about 700 production workers, partly because of automation and partly because of soft markets.

[89] Stowsky, op. cit., pp. 51-53.

[90] Integrated circuits, printed circuit boards, metal parts and castings, and commodity peripheral equipment.

[91] Michael Schrage, "AT&T Announces Largest Layoff in Its History," *Washington Post*, Aug. 22, 1985.

POLICY RESPONSES TO EMPLOYMENT DECLINE: THE PROTECTION DEBATE

The combination of high unemployment rates and record trade deficits has brought trade protection debates into new prominence. Many companies and workers hurt by foreign competition have brought allegations of unfair trade practices and petitioned for protection. In some cases, protection has been given, but generally there has been more pressure for protection than action in the 1970s and 1980s.[92] Part of the reason is that action is slow: in most cases, it takes years to settle questions regarding the fairness of foreign competition. Even after the Federal Government makes decisions, according to the terms of U.S. trade treaties, on the fairness of foreign competition and the degree of injury to U.S. producers, debate and pressure often continue.

Protection is almost always viewed by policymakers as a last resort to the problems of employment decline and displacement in industries pressed by rising imports. Often, the motives are simply to prevent massive job losses; in industries like apparel, without protection, a great many American workers would have been displaced rapidly. In other cases, protection may be advocated to give industries facing stiff international competition time to make the necessary adjustments, including gradual reduction of the work force so as to minimize displacement. Recent protection for the motor vehicle and steel industries are examples of this strategy.[93] Finally, some have advocated "infant industry" protection, to give new industries time to develop products, make production processes efficient, and develop markets without the additional strains imposed by foreign competition. This approach has been tried in other countries, but not in the United States. Preservation of jobs and minimizing displacement are often the arguments made most strongly by those seeking protection. Ironically, some of the most persuasive arguments *against* protection also are employment-related. The next section discusses the advantages of protection, in terms of employment; the section following discusses costs of protection.

The Effect of Protection on Employment: Positive Aspects

The strong commitment of the United States to free trade is supported by mainstream economic theory, which states that everybody is better off under free trade conditions. Theory states that, if each country produces and exports those products which it has an advantage in producing, and imports products where its disadvantages are greatest, consumers in all countries have access to a wider variety of cheaper products. As a country's advantage shifts—when some industries lose their advantage and others grow stronger—labor and capital leave some industries and enter others. For example, as the U.S. apparel and television industries lose their advantage, labor and capital are shifted out of these industries and into others where the United States is more competitive. This process of adjustment is a normal part of a dynamic economy, and economic theory usually assumes that there is ample time for the process to work.[94] When this is true, it is easy to see the advantages of free trade.

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[92] William R. Cline (ed.), *Trade Policy in the 1980s* (Washington, DC: Institute for International Economics, 1983), p. 8.

[93] In their petition for restraints on imports of steel in January 1984, the United Steelworkers of America and Bethlehem Steel cited the need for "breathing space" to allow the industry time to modernize. The subsequent Presidential decision in September 1984 provided some protection, and directed the International Trade Commission to monitor the efforts of the industry to modernize. According to one analysis, the steel industry has met the requirements, stepping up its investments in new plant and equipment. Sources: American Iron and Steel Institute, "Steel Industry Continues Long History of Production Process Innovation," excerpts from testimony of David J. Cantor, Congressional Research Service, Aug. 29, 1985; and U.S. Department of Commerce, *1985 U.S. Industrial Outlook*, op. cit., p. 19-20.

However, theory also assumes that capital and labor are fully used—in the case of labor, this means that there is no structural unemployment—and that they can readily shift from one sector to another. Both assumptions have faults. Unemployment has been rising in all industrialized countries; in the United States, the unemployment rate is at a historic high for a period of prosperity (see ch. 4). There are not enough new jobs to go around, and some people displaced from declining industries are unable to find new ones readily. Moreover, much of the skill and knowledge that people use in their jobs are not suitable for new jobs; the same is true of capital equipment. The capital equipment used in the apparel industry, for example, is not very adaptable to more competitive industries like computers and aircraft, and neither are many of the workers. When there is plenty of time for adjustment, capital equipment can be depreciated, and employment can be reduced through attrition. When there is not, as is often the case, the transfers are more painful; people are displaced, and industry-specific skills and capital have no value.[95] The more abrupt the transition, the greater the likelihood that workers will face prolonged periods of involuntary unemployment and other costs of displacement, such as taking a new job at much reduced pay.

Protection can help to reduce the costs of adjustment by prolonging the period of transition, making it possible to reduce the work force through attrition rather than layoffs. An example is the apparel industry, which has had some form of negotiated protection—though not in all products, or from all countries—for nearly three decades. Since 1974, the Multifiber Arrangement (MFA) has provided the basis for managed growth of apparel and textile trade. The MFA allows signatories (originally, there were 50) to negotiate bilateral agreements establishing export quotas in cotton, wool, and manmade fibers.[96] The United States has such agreements with 28 countries, as well as agreements with 8 countries which did not sign the MFA.[97] These agreements were not intended to stifle imports, but to permit them to rise steadily, without great disruption of domestic industries. However, the rate of growth in U.S. demand for apparel has been lower than the rate of import growth under MFA, with resulting disruptions in the U.S. apparel industry. Yet without the MFA protection, employment losses and displacement would likely have been, as one analysis puts it, "massive."[98] The MFA is due to expire in mid-1986, but legislation establishing new protection in textiles and apparel is moving through Congress as this report is being written. If MFA is not replaced with some kind of protection (which it probably will be) job losses could reach 570,000 by 1990.[99] Protection certainly does not guarantee employment stability, and apparel employment is expected to decline with or without it. However, slow erosion of employment is more humane, from the standpoint of workers, than rapid job loss.

Another industry in which job losses were slowed by protection is the motor vehicle industry. In the late 1970s, Japanese automobiles were making rapid inroads into the U.S. market; from 1978 to 1981, the Japanese share of U.S. car sales accelerated from 12.7 to 21.4 percent, while the U.S. share fell from 82 to 73.1 percent. Employment dropped by over 216,000, with a loss of almost 202,000 jobs between 1979 and 1980 alone. In 1980, the Ford Motor Co. and the United Auto Workers petitioned for import relief, which was subsequently denied by the International Trade Commission. However, pressure for protection was growing; in 1981, support was increasing for congressional proposals to restrict Japanese exports of motor vehicles. On May 1, 1981, the Japanese Ministry of Industry and Trade (MITI) announced a voluntary restraint agreement (VRA) on exports of motor vehicles to America, limiting Japanese exports to 1.76 million cars, passenger vans, and utility vehicles. In late 1983, the agreement was extended until March 31, 1985, at a level of 1.94 million units.[100]

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[94] H. Peter Gray, *Free Trade or Protection? A Pragmatic Analysis* (London: The Macmillan Press Ltd., 1985, in press), p. 3.

[95] Ibid., p. 4.

[96] Jeffrey S. Arpan, Jose de la Torre, and Brian Toyne, *The U.S. Apparel Industry: International Challenge, Domestic Response*, Research Monograph No. 88 (Atlanta: Georgia State University, 1982), p. 116.

[97] U.S. Department of Commerce, *1985 U.S. Industrial Outlook*, op. cit., p. 45-2.

[98] Nehmer and Love, op. cit., p. 232.

[99] Estimate cited in Parsons, op. cit., p. 40.

There is wide disagreement on the number of automobile industry jobs protected by the VRA. A number of assumptions must be made in order to estimate the employment impacts, including assumptions on how many Japanese automobiles would have entered the U.S. market without protection, how many additional American cars were made because of the limitations on imports, and how many American workers were employed to make the additional American cars. Estimates range from 26,200 to 133,000 jobs saved in the auto industry; assumptions on the rate of Japanese import penetration probably accounts for most of the difference.[101]

The higher estimate represents an upper bound of the number of jobs protected in the automobile industry alone, assuming that Japanese automobiles would have captured about 39 percent of the U.S. market without the VRA,[102] and that this would have meant a reduction of about 1.7 million domestically made automobiles. The lower estimates are based on conservative assumptions about the eventual share of Japanese automobiles. For example, the U.S. International Trade Commission estimate that the VRA averted losses of 44,100 jobs in automobiles assumed that the growth trends of 1967 to 1980 would have continued during the time the VRA was in effect. This estimate took little account of the rapid acceleration in the Japanese share in the late 1970s.

An estimate from the International Trade Administration projected Japanese market penetration on the basis of two different assumptions. Under very conservative assumptions, the Japanese share was projected to grow at 0.6 percent per year without the VRA, or at the same rate that it grew during the first 2 years of the VRA—meaning, in effect, that the VRA had no impact on the Japanese share. A more realistic estimate was that the share would have increased by 3 percentage points per year, comparable to the growth between April 1979 and March 1981. The second estimate yielded an employment gain (or avoidance of loss) of nearly 62,000 jobs in the automobile industry in the last 2 years of the VRA.[103] ITA also estimated that an additional 43,000 jobs were protected in supplier industries, such as steel, rubber, and glass, bringing its estimate of protected employment to 105,000. Neither ITA nor any other analysis has attempted to measure tertiary impacts—i.e., outside jobs generated in stores, housing construction, and other economic activity by employment in the automobile or supplier industries. If tertiary impacts are counted, jobs protected by the VRA might number well over 105,000.

In addition to preserving some jobs in American industries, or stretching out employment losses, protection—or the possibility of protection—may also encourage some foreign companies to locate manufacturing facilities in the United States. There is little question that protection helped stimulate recent Japanese investments in television, automobile, and truck production in the United States. Locating manufacturing facilities here has two advantages for the Japanese: it helps to soften pressures for protection, and it allows Japanese producers to gain larger shares of the U.S. market than they could with exports alone.

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[100] These limits were exceeded every year of the VRA. Between 1981 and 1984, the original period of the VRA, imports ranged from 1.78 million to 1.84 million units. During the last year of the VRA, from Apr. 1, 1984, to Mar. 31, 1985, 2.31 million automobiles were imported from Japan.

[101] Scott, op. cit., pp. 27-33. The lower number was made by Robert Crandall of the Brookings Institution, and covers only the first 2 years of the agreement.

[102] The 39 percent share is based on an estimate that the Japanese could have captured almost all the subcompact market segment, half the compact segment, and about 3.5 percent of other market segments.

[103] According to ITA, the VRA did not seriously limit Japanese car sales in the United States until the second quarter of 1983, largely due to depressed markets during the recessions of 1980 and 1982. Source: U.S. Department of Commerce, International Trade Administration, "Analysis of the Japanese Auto Export Restraint," Executive Summary, mimeo, pp. 5-9.

The employment gains from foreign producers locating in the United States should not be overstated. In 1983, Japanese automakers in the United States employed fewer than 30,000 American workers, or 4 percent of industry employment.[104] As the number of Japanese assembly plants in America and U.S.-based joint ventures with Japanese automakers increase, the proportion should grow. By 1990, Japanese automakers are expected to have the capacity to make nearly 1 million autos per year in the United States.[105] However, foreign firms locating production facilities in the United States do not create as many indirect jobs as do American firms. Japanese automakers and television manufacturers buy more of their parts from overseas than do American manufacturers. For example, the New United Motor Manufacturing, Inc. (NUMMI) joint venture between General Motors and Toyota, producing Chevrolet Novas in Fremont, California, will buy 70 percent of its parts—including major subassemblies such as engines and transmissions—from Japan, and only 30 percent from the United States.[106] Typically, the proportion of domestically produced parts is much higher for American firms.[107]

The Effect of Protection on Employment: Costs

Although protection can be effective in preserving jobs for a time and allowing orderly employment declines, the costs can be high. Protection raises the price of the protected product to consumers, either by adding a tariff to the price consumers pay or by limiting the number of items imported. When import prices go up, domestic manufacturers also increase their prices. Estimates of the increased cost to consumers, together with estimates of the numbers of jobs preserved, are the basis for the often-quoted figures on "cost per job saved." The figures are usually quite high; for example, the International Trade Commission (ITC) estimates that, from 1981 to 1984, the VRA increased the prices of domestic and imported automobiles by $15.7 billion (about $800 per car), and saved 44,100 jobs in the auto industry. The numbers of jobs saved in supplier industries was not estimated because, according to ITC, "it is believed that estimates of these additional employment effects would not be particularly useful."[108] Dividing the ITC estimates of costs and jobs saved gives a figure of nearly $357,000 per job over 3 years. Another estimate, by Robert W. Crandall of the Brookings Institution, concludes that the VRA cost American consumers about $160,000 per job in 1983.[109] The International Trade Administration estimated that the VRA cost consumers about $10.1 billion between April 1983 and March 1985. Costs per job saved over these 2 years were, therefore, about $164,000 to $96,000 per job, depending on whether indirect job gains are counted.[110]

These estimates cannot be taken at face value. First, only one—that of ITA—counts the number of jobs preserved in supplier industries, and none of the estimates includes tertiary effects. In that sense, all the estimates overstate the costs per job saved. In some of the estimates (especially that of ITC) the assumptions on growth of the Japanese share of the U.S. auto market are so conservative as to be unrealistic. Moreover, none of the estimates includes any analysis of possible long-term effects of protection on competitiveness. If the long-term effect of the VRA turns out to be improved productivity, product design, and product performance in the U.S. auto industry, the costs of protection may turn out to be temporary, and may be paid back in the years to come. Over the short run, however, it is clear that the VRA cost tens of thousands of dollars per year per job saved.

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[104] Total employment in motor vehicles and equipment was 753,700 in 1983, of which 723,000 were employed by Ford, General Motors, Chrysler, AMC, and Volkswagen. Sources: U.S. Department of Commerce, *The U.S. Automobile Industry*, op. cit., p. 19; and U.S. Department of Labor, Bureau of Labor Statistics, *Supplement to Employment and Earnings*, June 1985.

[105] Warren Brown, "Chrysler, Mitsubishi Set Joint U.S. Venture," *The Washington Post*, Oct. 7, 1985, p. A14.

[106] Daniel J. Schroeter, "Joint Venture Unwrapped, Nova Debuts at Detroit's St. Regis," *Automotive Business*, June 17, 1985, p. 1.

[107] John Hartmann, Automotive Industry Analyst, U.S. Department of Commerce, International Trade Administration, personal communication, Oct. 8, 1985.

[108] U.S. International Trade Commission, "A Review of Recent Developments in the U.S. Automobile Industry Including an Assessment of the Japanese Voluntary Restraint Agreements," USITC Publication 1648, February 1985, p. 41. No explanation is given for the uselessness of estimates of related employment.

[109] Robert W. Crandall, "Import Quotas and the Automobile Industry: The Costs of Protectionism," *The Brookings Review*, vol. 2, No. 4, Summer 1984, p. 16. Crandall estimated that the VRA had saved 26,200 jobs, and cost consumers $4.3 billion, not including "additional losses in consumer welfare."

[110] ITA estimated that both the consumer cost of the VRA and the jobs protected were modest until early 1983.

Protection can give industries the time they need to improve their competitiveness. Temporary protection, for example, gave the automobile industry a "breathing space" to improve productivity and product design and performance; eventually, these changes may help to preserve more jobs than if the pressure from imports in the late 1970s had continued into the early 1980s. The story is similar in textiles. The industry has invested heavily in new plant and equipment under the Multifiber Arrangement, raising productivity and competitiveness particularly in manmade fibers. However, protection does blunt the competition, and may thereby remove some of the incentive for beleaguered industries to take the steps needed to compete.

Another of the employment effects of protection that is often overlooked is the shift of competition from protected to unprotected products or industries. For example, some argue that protection of U.S. natural fiber markets resulted in foreigners shifting more rapidly to production of manmade fibers. The VRA in automobiles caused Japanese producers to fill their quotas with more expensive, profitable cars which competed in the luxury-car market previously dominated by American and European cars. Bilateral agreements limiting exports of one country can also encourage the formation of industries in countries without quota agreements. Early quota arrangements in textiles and apparel applied only to Japan, leaving the door open to other countries wishing to export cotton to the United States; Hong Kong was the first to do so. In the end, the result was pressure for more protectionist arrangements with other countries; the single country agreement did not effectively limit imports.[111]

Employment can be adversely affected in industries other than those protected, as foreign countries retaliate. For example, threats of protection against natural fibers from China have evoked threats of countermeasures to limit Chinese purchases of American agricultural products. Since agricultural products figure heavily in U.S. exports, retaliatory protection affects agriculture disproportionately.

Increasing pressure for protection, as more industries and countries respond to existing arrangements, threatens more than just a few workers or industries. If one country limits its market to foreign producers, exporting countries usually seek new markets, putting unprotected markets at greater risk. The wider protection spreads, the greater the likelihood that economies which depend on trade will slump, with serious repercussions for overall industrial performance and employment.

Even if long-term effects are included, and all primary, secondary, and tertiary jobs preserved by protection are counted, protection is expensive. It costs consumers money, and may lead to more pressure for protection. The alternatives, when industrial decline and job loss occur as a result of international competition, are for the economy to create enough new jobs to provide for displaced workers as well as other job seekers, and for government programs to provide adjustment assistance to displaced workers having trouble finding jobs comparable to those they have lost.

The first alternative—creating enough new jobs—has proven an unattainable goal for most of the last four decades throughout the industrialized world. Government policies to stimulate job creation cover a broad spectrum. They include macroeconomic policies aimed at stimulating growth of the whole economy, trade policies which protect domestic markets or attempt to open foreign markets to domestically produced goods, subsidies to industries or workers to keep existing workers employed, and jobs programs for people with particular disadvantages in the labor market. Some countries employ policies that are termed job creation policies that are really more policies designed to reduce the number of people counted as unemployed. While most industrial countries have tried policies such as these to stimulate employment, no country can legitimately claim to have succeeded. Unemployment rates have been rising throughout the world; one symptom of the depth of the current problem is that the United States, with its historically high unemployment rates of 7 to 7.5 percent in prosperous 1984 and 1985, is viewed by many European analysts as a place where answers to high unemployment problems are to be found. This comes at a time when U.S. policymakers have begun, again, to grapple with the problem of high unemployment rates.

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[111] Aggarwal and Haggard, op. cit., p. 265.

Adjustment assistance is often viewed as equitable compensation to workers who bear a disproportionate share of the burden of policies to promote free trade. The United States has two adjustment assistance programs: Trade Adjustment Assistance, for workers who have lost jobs due to trade; and Title III of the Job Training Partnership Act, for all displaced workers. These programs, the services they provide, and their performance, are the subject of chapters 5 and 6.

Chapter 10

Displaced Homemakers

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Chapter 10

Displaced Homemakers

OVERVIEW AND FINDINGS

Displaced homemakers are women whose principal job has been homemaking and who have lost their main source of income because of divorce, separation, widowhood, disability or long-term unemployment of a spouse, or loss of eligibility for public assistance. Many of these women have serious trouble finding jobs that are adequate to support themselves and their families. Estimates of the number of displaced homemakers range from over 2 million to about 4 million.

Definition and Dimensions of Homemaker Displacement

This chapter provides the first national estimates of the displaced homemaker population for more than 1 year. Because of the definition and database used, the estimates are conservative—rising from 1.7 million in 1975 to 2.2 million in 1983. Different definitions and different databases have yielded estimates for single years that are more than twice as large. The definitions in various State and Federal laws and programs also differ, with little consistency in those considered eligible for program services.

Under the definition used for descriptive purposes here, displaced homemakers are women who:

1. are between the ages of 35 and 64, and are:
    - divorced, separated, or widowed; or
    - married but husband is absent, seriously disabled, or long-term unemployed; or
    - losing income from public assistance because the youngest child is 17 to 19 years old; and
2. have had serious employment problems, including unemployment, working at pay below the minimum wage, working part time but preferring full time, or dropping out of the labor force from discouragement.

The number of displaced homemakers rose 28 percent from 1975 to 1983. At the same time the population of all U.S. women in the age group rose only 11 percent.

Characteristics of Displaced Homemakers

- Of the estimated 2.2 million displaced homemakers in 1983, over 1 million were divorced, separated, or had an absent spouse. Rapid growth in this group (54 percent) accounted for much of the increase in numbers of displaced homemakers from 1975 to 1983.
- Many displaced homemakers are living in or close to poverty. In 1982-83, nearly half of them had family incomes below $10,000 a year (1982 dollars). At least 30 percent of those in families of four or more were below the poverty level in 1983, compared with 15 percent of all families at that time.
- A majority (61 percent) of displaced homemakers had children living at home; for 45 percent of the group, the youngest child at home was of school age. Families were generally small; nearly three-fifths of the displaced homemakers were in families of two or three people. Slightly over one-fifth were in single-person families; another one-fifth were in families with four or more members.
- By definition, all of the displaced homemakers were having trouble finding satisfactory jobs. Half were employed, but at pay below the minimum wage or in a part-time job when they wanted a full-time job. In 1975 (latest data available) disproportionate numbers of displaced homemakers, compared to other women workers, were service workers, in such jobs as waitress, hotel maid, or nursing home aide; they were underrepresented in clerical, professional, technical, and administrative jobs.

Displaced Homemaker Programs

- Federal support for displaced homemaker programs began in 1976 in amendments to the Vocational Education Act; Congress recently strengthened support in the Carl D. Perkins Vocational Education Act of 1984 (Perkins Act). Despite the increased support, however, Federal funding of displaced homemaker projects is still modest in relation to the eligible population of 2 million to 4 million.
- In 1984, several hundred displaced homemaker projects existed across the country, probably serving at least 100,000 women a year. Data on displaced homemakers and the programs serving them is sparse, but OTA's research and review of available evidence indicate that the number of displaced homemakers receiving employment and training services has grown in recent years, with the rise in their numbers and a growing awareness that services are available. Funding to support the projects has also apparently grown, though barely keeping up with demand.
- State funds were the main support of displaced homemaker programs in 1984. This situation may change, with the increased funding available to displaced homemaker programs under the Perkins Act. Congress appropriated about $63 million under the act for services to single parents and homemakers, including displaced homemakers, for fiscal year 1985. How much of this went to displaced homemaker programs was not certain, but it appeared likely to be a large share and to exceed substantially Federal funding of the past. Despite some resistance from the vocational education (Voc Ed) establishment to the idea of set-asides under the Perkins Act (especially the set-aside for single parents and homemakers), the act opens new opportunities to projects serving displaced homemakers.
- Many of the services displaced homemakers need can be funded under the Perkins Act, but the main focus of the act is still on vocational training. The Job Training Partnership Act (JTPA) stresses job search assistance more heavily. Also, JTPA is another source of funds for services that are still very modestly supported, despite the increased Voc Ed funding for services to single parents and homemakers in the Perkins Act. For these reasons, many displaced homemakers will benefit from access to JTPA as well as to the federally funded vocational training system.
- JTPA funds were a minor source of support for displaced homemaker programs in 1984. By early 1985, it appeared that use of JTPA funds to provide services to displaced homemakers might be increasing, but they were still not a principal source of support. Moreover, most of the JTPA-funded projects were not specially designed to serve displaced homemakers, but served other clients as well. For some displaced homemakers, with little work experience and confidence, this is a substantial disadvantage.
- A serious difficulty in serving displaced homemakers with JTPA funds is that many of these women do not qualify as economically disadvantaged, often because their previous income, before they became displaced, was too high. Thus they are not eligible for JTPA Title IIA programs, which are intended primarily to serve disadvantaged, low-income people. Although there are exceptions to the low-income rules, not too many service providers are making use of them. There are no income limits to service under JTPA Title III (for displaced workers), but in many States, displaced homemakers are not considered eligible because the definition of dislocated workers in the law does not necessarily include them. Other problems are that displaced homemaker project staff often lack information about JTPA, or that local Private Industry Councils, which direct JTPA programs, oppose special services for this group of workers.
- The administrators of displaced homemaker and other women's programs under the Perkins Act see data collection as an urgent issue, so that when reports are required after the first 3 years of the new program they can show Congress the results. The act does

not specifically require regular reports on services provided to single parents and homemakers, and the U.S. Department of Education has no such requirement. State officials are beginning to develop a consistent, national system of data collection for characteristics of clients served in the women's programs, services provided, outcomes, and results one year later. If successful, this effort will fill a long-standing need for information about displaced homemakers and the programs designed to serve them.

Design and Performance of Displaced Homemaker Projects

Although no systematic evaluations of displaced homemakers programs have ever been done, a few findings can be drawn from the experience of women who have received the services and from experienced project directors. From OTA-sponsored interviews with 20 directors of displaced homemaker projects and from a few other sources, the following observations emerge:

- Women seeking services from displaced homemaker programs are a diverse group, in age, education, and financial background. Different kinds of services are appropriate to meet the needs of different types of clients, especially rural women, long-time recipients of welfare, minorities, widows, and older women. The groups least served at present are minority and rural women.
- For all groups of displaced homemakers, a comprehensive program of services is desirable, particularly one which combines personal counseling with job readiness and skills training. A considerable number of displaced homemakers need remedial or brush-up courses in reading and math to qualify for training or good jobs.
- Many displaced homemakers cannot take advantage of the training and education open to them because of lack of income support. Most are not eligible for unemployment insurance, and few have income from other family members. Voc Ed funds can be used to provide child care and other support services, and training stipends in cases of acute economic need, but usually have not been used in this way in the past. JTPA funds can also be used for supportive services and some forms of income support, but little is currently being spent for these services.

POPULATION AND NEEDS OF DISPLACED HOMEMAKERS

Displaced homemakers, like workers displaced from factory and office, have lost their accustomed source of income, and face painful readjustment and employment problems. They are women whose main job has been home and family, but must now support themselves because of divorce, separation, widowhood, disability or prolonged unemployment of their spouse, or loss of eligibility for public assistance.[1] Although definitions of displaced homemakers differ from one State, one law, and one program to the next, and estimates of their numbers vary accordingly, it is clear that this group of displaced workers is large and growing. Estimates of the number of displaced homemakers range from over 2 million to 4 million.

Definition and Dimensions of Homemaker Displacement

The usual image of the displaced homemaker is a woman of middle age who has spent most of her adult life caring for her home and family full time; who has little experience with paid work, certainly none recently; and who has been thrust on her own either by widowhood or by divorce, in an age when divorce after 20 or 30 years of marriage has become socially acceptable. The term "displaced homemaker," coined by Sommers in 1975, implied forcible exile of a full-time homemaker into a labor market for which she was ill-prepared. Too young for Social Security, ineligible for welfare or unwilling to ask for it, with too little work experience to receive unemployment insurance, these women were seen as falling through the cracks of government social service and income support systems.[2]

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[1] Although a few men may fit the definition of displaced homemaker, the analysis in this chapter is confined to women.

This picture, while not inaccurate, is incomplete. Many of the definitions of displaced homemakers appearing in State or Federal laws are more broadly inclusive, especially in adding women as young as 22 years old; women in poverty (not necessarily ever married) who are about to lose public assistance as their main source of income, as their last child reaches 18 years of age; and women whose husbands are too disabled to work or have been unemployed for 6 months or more. Some definitions are quite restrictive about work experience outside the home, ruling out women who have worked in paid jobs in the past 5 years. Others limit the definition to women over 35 or 40 years old.

The figure most often cited for numbers of displaced homemakers is 4.1 million, an estimate developed by the Women's Bureau of the U.S. Department of Labor in 1976. Based on the Survey of Income and Education of 1975 (SIE), the estimate counted women 22 to 64 years old who were widowed, divorced, separated, or married with a disabled spouse; or who received Aid to Families with Dependent Children and whose youngest child was 16 or 17 years old; and who had worked less than 500 hours the previous year or had not worked at all for 5 years or more. The Comprehensive Employment and Training Act (CETA) Amendments of 1978, which named displaced homemakers as a targeted group eligible for services, used a similar definition, but changed the employment proviso, requiring that the displaced homemaker must be unemployed or underemployed and experiencing difficulty in obtaining or upgrading employment.

For this chapter, OTA has used a somewhat different definition of displaced homemakers and a database—the *Current Population Survey (CPS)*—which permits comparisons from one year to the next.[3] The Survey of Income and Education, though rich in detail, was a one-time effort, not repeated since 1975. By using the CPS, OTA was able to provide the first national estimates of the displaced homemaker population for more than 1 year. Partly because of differences in definition, and partly because of unexplained differences between the CPS and the SIE databases, OTA's multiyear estimates of the displaced homemaker population—rising from 1.7 million in 1975 to 2.2 million in 1983—must be regarded as conservative.

Under the definiton used here, displaced homemakers are women who:

1. are between the ages of 35 and 64 and
    - are divorced, separated, or widowed; or
    - are married but their husband is absent, seriously disabled, or long-term unemployed; or
    - receive income from Aid to Families with Dependent Children (AFDC), Social Security, or child support, but expect to lose it because the youngest child is 17 to 19 years old; and
2. have had serious employment problems.

This definition distinguishes between former homemakers who encounter real difficulty in finding work, as they enter or reenter the job market, from those who do not. Even wives who have been working may find it very hard to make the transition from secondary to primary or sole wage earner. Often a wife's income is relatively meager; in the late 1970s the average working wife contributed about one-quarter of the total family income. For the purpose of defining displaced homemakers, indications of difficulty in finding work are current unemployment *plus* having been unemployed for at least 26 weeks of the previous year or out of the labor force; working part time when a full-time job is preferred; receiving pay below the minimum wage; or dropping out of the labor force because of discouragement about the prospects of finding a job.

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[2] Laurie Shields, *Displaced Homemakers: Organizing for a New Life* (New York: McGraw-Hill, 1981).

[3] The definition was provided to OTA in a report prepared by the Urban Institute, as a basis for estimates of numbers of displaced homemakers. See Carolyn Taylor O'Brien and Demetra Smith Nightingale, *Programs for Displaced Homemakers in the 1980s*, report to the Office of Technology Assessment (Washington, DC: The Urban Institute, 1984). Much of the material here is drawn from the report. Estimates in the report are based on data in the March *Current Population Survey* (CPS) of 1976, 1980, 1983, and 1984. The CPS is a monthly survey conducted by the Census Bureau of a sample of 60,000 households.

The definition rejects the criterion that a woman be totally out of the labor force for a number of years. Most women have some work experience, particularly once their youngest child enters school. A woman who works for a few weeks in the Christmas rush or part time during school hours to boost the family income may still be at a loss if she has to provide full support for herself and her family. To exclude women with any recent work experience from the definition would leave out the majority of former homemakers, especially women of lower and middle income levels, who are most likely to have combined some paid work with homemaking. Also included are women who must seek a job because their husbands are unable to work—either the husband did not work at all in the previous year, mainly because of illness or disability, or he was unemployed (looking for a job but could not find one) for at least 26 weeks out of the previous year.

In this definition, the term "displaced" is reserved for women between 35 and 64, on the argument that both younger and older women are likely to have more options and resources than those of middle years. Women over 64 are generally eligible for some form of Social Security or pension. Younger women, with recent training or work experience, are often more employable; if they have young children, they may qualify for public assistance; and they are more likely to remarry. On the other hand, it may be argued that younger women with young children face even more difficult employment and income problems than displaced homemakers of middle years. Many displaced homemaker programs do in fact serve women younger than 35, and many others do not inquire too stringently into the work history of former homemakers seeking help in finding a job. Definitions of displaced homemakers constructed to fit an existing database, and used for the purpose of estimating numbers and characteristics of the displaced homemaker population, may be different, and perhaps less flexible, than definitions used by service providers.

On the basis of the definition outlined above, there were 1.7 million displaced homemakers in 1975, 1.9 million in 1979, 2.3 million in 1982, and 2.2 million in 1983 (the most recent year for which figures were available when this report was written) (see table 10-1). It is quite likely that these numbers, though large, are understated. Another estimate for 1975, using virtually the same definition, but drawn from the Survey of Income and Education, produced a figure of 2.2 million displaced homemakers; this compares with the figure of 1.7 million for 1975 presented here.[4] Also, the definition used here excludes women younger than 35, an arguable point. Even so, the 1983 figure of 2.2 million represents about 6 percent of all women in the age group for that year. The rise in numbers of displaced homemakers is striking—a 28-percent increase from 1975 to 1983. At the same time, the population of all U.S.women in the age group rose only 11 percent.[5]

Comparisons with other groups of displaced or unemployed workers shed some light on the significance of the displaced homemaker problem. For example, the number of mainstream workers displaced from paid jobs was probably about 3 million in 1983. Not all of these workers were displaced in the sense of having serious difficulty in getting new jobs.[6] In the same year, displaced homemakers numbered at least

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[4] Both estimates were prepared by the Urban Institute. See Jean E. Vanski, Demetra Smith Nightingale, and Carolyn Taylor O'Brien, *Employment Development Needs of Displaced Homemakers* (Washington DC: The Urban Institute, 1983); and O'Brien and Nightingale, op. cit.

[5] This includes civilian women outside of institutions.

[6] The number of displaced workers eligible for JTPA Title III services in 1984-85 is uncounted and uncertain, but an estimate may be based on numbers in years when a survey was done. In the 5 years 1979-83, 11.5 adult workers lost their jobs due to plant closings or relocations, abolition of shifts or positions, or slack work. Nearly 3.3 million of the 11.5 million lost jobs in 1983. It is likely that most of these workers met the definition of eligibility in Title III. There is little evidence that the pace of displacement slowed markedly in 1984-85. See chs. 3 and 4 for details.

Table 10-1.—Characteristics of Displaced Homemakers, Selected Years (numbers and percentages)

	Numbers in thousands				Percentages			
	1975	1979	1982	1983	1975	1979	1982	1983
Marital status:								
Married, disabled or unemployed spouse	641.0	739.1	911.3	769.9	37.0	36.5	39.0	34.7
Divorced/separated/spouse absent	653.0	769.2	978.1	1,005.6	37.7	40.1	41.8	45.3
Widowed	438.4	409.1	438.5	433.0	25.3	21.3	18.8	19.5
Never married	N/A	3.5	11.1	13.4	N/A	0.2	0.5	0.6
Total	—	—	—	—	100.0	100.0	100.0	100.0
Race:								
White	1,311.0	1,494.5	1,811.5	1,750.3	75.7	77.8	77.5	78.8
Black	392.1	385.6	453.2	409.6	22.6	20.1	19.4	18.4
Other	29.2	40.5	74.1	61.8	1.7	2.1	3.2	2.8
Total	—	—	—	—	100.0	100.0	100.0	100.0
Age:								
35-44	504.5	619.7	907.8	860.8	29.1	32.3	38.8	38.7
45-54	615.2	674.9	746.1	701.3	35.5	35.1	31.9	31.6
55-64	612.6	626.2	685.1	659.8	34.4	32.6	29.3	29.7
Total	—	—	—	—	100.0	100.0	100.0	100.0
Family income:[a]								
Less than $10,000/yr	734.6	755.3	1,055.6	1,033.7	42.4	39.3	45.1	46.5
$10,001-$20,000/yr	595.0	600.2	698.3	605.6	34.3	31.3	29.9	27.3
$20,001-$30,000/yr	239.8	303.0	314.4	343.1	13.8	15.8	13.4	15.4
More than $30,001/yr	163.0	262.3	270.7	239.5	9.4	13.7	11.6	10.8
Total	—	—	—	—	100.0	100.0	100.0	100.0
Total	1,732.2	1,920.5	2,338.6	2,221.6				

N/A—Too few in this category to be estimated from the *Current Population Surveys*.
[a] 1982 constant dollars.

SOURCE: Carolyn Taylor O'Brien and Demetra Smith Nightingale, *Programs for Displaced Homemakers in the 1980s*, report to the Office of Technology Assessment (Washington, DC: The Urban Institute, 1984), based on *Current Population Surveys*, 1976, 1980, 1983, 1984.

2.2 million, according to the conservative estimates developed for OTA based on CPS yearly surveys. The average number of unemployed American workers in 1983 was 10.7 million. From 1984 through mid-1985, the number of unemployed workers hovered around 8.2 to 8.5 million.

Characteristics of Displaced Homemakers

Of the estimated 2.2 million displaced homemakers in 1983, over 1 million were divorced, separated, or had an absent spouse (see table 10-1). Rapid growth (54 percent) in this group accounted for much of the increase in numbers of displaced homemakers from 1975 to 1983. In 1982, at the depth of the recession, there was a bulge in the category of married women with disabled or long-term unemployed husbands; but with the beginning of recovery in 1983, the bulge flattened out. Equally striking was the increase (71 percent) in numbers of women at the younger end of the range, those between 35 and 44 years old. Black women are overrepresented; 18 percent of the displaced homemakers in 1983 were black, compared to 12 percent of all women in the age group. Finally, many of these women were close to poverty. In 1982 and 1983, nearly half of them had family incomes below $10,000 a year.

Income[7]

Most of the evidence indicates that displaced homemakers, like other female heads of households, are disproportionately poor. In 1982, their mean family income was reported to be $15,000, compared to $25,000 for all families. However, this figure may well overstate the actual income status of displaced homemakers. The same is true of the data in table 10-1 which show the distribution of family income among groups of displaced homemakers. Reportedly, 25 to 29 percent of these women received family incomes of $20,000 or more per year between 1979 and 1983. This percentage is surprisingly large considering that, *by definition*, these displaced homemakers were unemployed or underemployed.

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[7] Income figures in this section, unless otherwise noted, are in constant 1982 dollars.

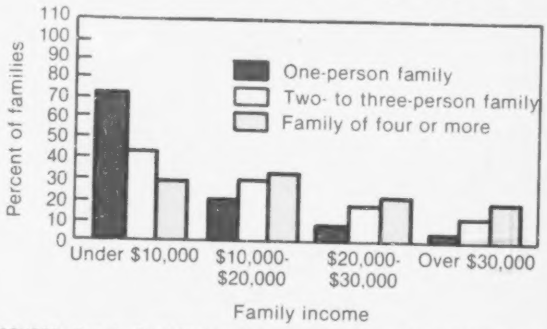
One possible explanation is that the income figures are out of date—that they represent former, not present, family income. In various years, some 54 to 58 percent of the women with incomes in the two upper income brackets ($20,000 to $30,000 and over $30,000) were in the category of married with husbands either physically disabled or persistently unemployed. The reported family income is based on the previous 12 months, and therefore could include earnings from a period when the husband was still employed.

An additional factor (probably less important) is that some of the higher incomes reflect alimony or child support payments. Earlier studies show that quite a small minority of displaced homemakers (about 15 percent) receive alimony or child support.[8] Indeed, of all divorced women in 1975, about 14 percent were awarded alimony and 47 percent child support—but fewer than half who were entitled to support ever received regular payments.[9] Yet, for the minority of women who receive them, child support payments may sometimes be an important source of family income—at least for a time. Analysis of the CPS data shows that about half the divorced and separated displaced homemakers in the upper two income brackets who were receiving some child support at the time of the survey were likely to lose that income soon because their youngest child was approaching 18 years of age. The two factors described above probably account for a good deal of the higher-than-expected incomes of about one-quarter of displaced homemakers; limitations in the data and analysis of the data make it difficult to be more precise.

Altogether, it is likely that the reported figures understate the financial adversity experienced by displaced homemakers. Even so, the figures indicate that the majority face serious problems. In 1983, at least 30 percent of displaced homemakers' families were below the poverty level (then at about $10,000 a year for a family of four). This compares to a national figure of 15.2 percent below the poverty level in 1983.[10] Figure 10-1 illustrates the distribution of displaced homemaker family income, by family size.

Another indicator of the economic situation of displaced homemakers is personal income. An analysis of 1975 data from the Survey of Income and Education found that the average personal income of displaced homemakers in that year was $4,317 (current dollars), which was $155 less than a full-time job at the minimum wage would have paid.[11] Employed women of the same age and marital status had an aver-

Figure 10-1.—Distribution of Family Income of Displaced Homemakers, by Family Size, 1983



SOURCE: Demetra Smith Nightingale and Carolyn Taylor O'Brien, *Estimates of the Displaced Homemaker Population*, report to the Office of Technology Assessment (Washington, DC: The Urban Institute, 1985).

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[8] Vanski, Nightingale, and O'Brien, op. cit.

[9] Carol Jones, Nancy Gordon, and Isabel Sawhill, "Child Support Payments in the United States," Working Paper 992-03 (Washington DC: The Urban Institute, 1976).

[10] Thirty percent of displaced homemaker families of four or more had incomes below the poverty level, which equaled about $10,000 (1982 dollars) in 1983. It is likely that smaller families were below the poverty level in at least the same proportion, although displaced homemaker incomes were not broken out below the $10,000 level for the OTA analysis. (The poverty level in 1982 dollars was about $5,000 for a one-person family, and about $7,500 for a three-person family.)

[11] Vanski, Nightingale, and O'Brien, op. cit. The *Current Population Surveys*, on which the present analysis is based, show family income. The 1976 Survey of Income and Education, on which the earlier analysis was based, showed personal income. In 1982 dollars (the basis for most income figures in this discussion), the average personal income for displaced homemakers in 1975 was about $7,730. Personal income as defined in the earlier analysis included earnings, public assistance, Social Security benefits for minor children of widows, alimony and child support, Supplemental Security Income (SSI) and veterans' benefits, interest and dividends, and pensions.

age personal income of $8,749 in 1975. The most important source of income for displaced homemakers is their own earnings, as shown in the same study. Seventy percent of displaced homemakers earned money in 1975, and over half of their personal income came from earnings.[12] Figure 10-2 shows the source of displaced homemakers' personal income at that time, based on data in the Survey of Income and Education.

Some sources of income varied quite substantially among groups. For example, about one-third of divorced or separated white women reported receiving some alimony or child support payments in 1975, with the amount averaging about $3,000 per year (current dollars) per recipient. Only 16 percent of divorced black women, and 9 percent of separated black women, got alimony or child support; the average amount they received was about $1,300. The displaced homemakers most dependent on public assistance were divorced and separated, with 24 to 31 percent of white women in these groups receiving welfare payments, and 40 to 56 percent of divorced and separated black women. For the group of displaced homemakers as a whole, alimony and child support accounted for about 9 percent of personal income; public assistance provided about the same share.

Family Size and Children at Home

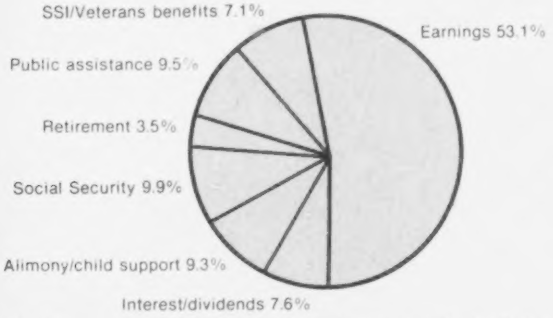
Families of displaced homemakers in 1983 were typically small (families are defined as related individuals living in the same household). About 22 percent were in families of four or more people; approximately the same number were the sole family member in their household (figure 10-3). As figure 10-1 indicates, the smallest families were generally the poorest. About 70 percent of the one-person families had incomes below $10,000 a year (1982 dollars). However, 30 percent of the larger families (four people or more) had family incomes below the $10,000 level.

All of the 2.2 million displaced homemakers in 1983 were, by definition, at least 35 years old, and 1.36 million were over 45. Even so, a majority (61 percent) had children at home. Figure 10-4 shows the distribution of numbers of children living at home with a displaced homemaker mother. Typically, the children in the families were of school age. Only 3 percent of displaced homemakers (as defined here) had children under 6; for 43 percent, the youngest child at home was 6 to 18 years old, and for 15 percent the youngest was over 18.

Employment

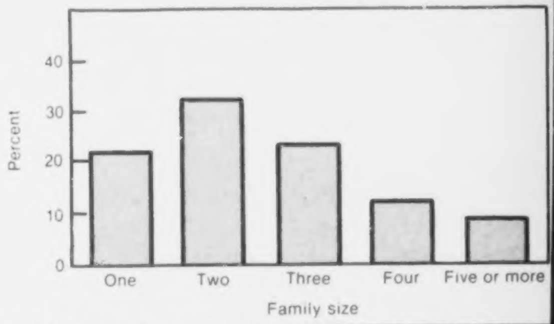
By definition, all of the displaced homemakers were having trouble finding satisfactory jobs. The Urban Institute study of displaced

Figure 10-2.—Sources of Displaced Homemakers' Personal Income, 1975



SOURCE: Jean E. Vanski, Demetra Smith Nightingale, and Carolyn Taylor O'Brien, *Employment Development Needs of Displaced Homemakers*, report to the U.S. Department of Health and Human Services, Administration on Aging (Washington, DC: The Urban Institute, 1983).

Figure 10-3.—Family Size of Displaced Homemakers, 1983



SOURCE: Demetra Smith Nightingale and Carolyn Taylor O'Brien, *Estimates of the Displaced Homemakers Population*, report to the Office of Technology Assessment (Washington, DC: The Urban Institute, 1985).

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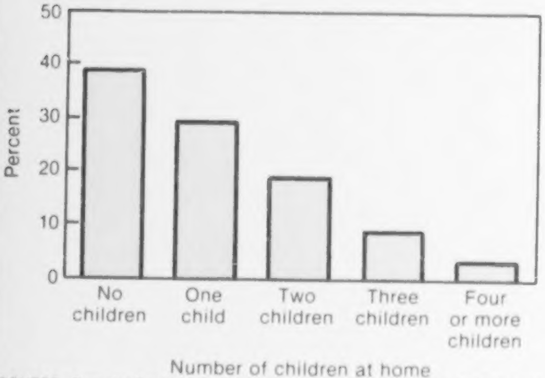
[12] Ibid.

Figure 10-4.—Number of Children at Home, Displaced Homemaker Families, 1983



SOURCE: Demetra Smith Nightingale and Carolyn Taylor O'Brien, *Estimates of the Displaced Homemakers Population*, report to the Office of Technology Assessment (Washington, DC: The Urban Institute, 1985).

homemakers as of 1975 was able to provide these details about employment at that time: over half were underemployed, most of them working full time but below the minimum wage, and the rest working part time although they wanted a full-time job. Twenty percent had been out of work at least half the preceding year, or out of the labor force because of discouragement. Fifteen percent were currently out of the labor force but intended to look for work within a year, and another 15 percent were about to lose AFDC or other income related to dependent children.

The jobs these displaced homemakers held (currently or recently) were by and large poorly paid. Forty-two percent were service workers, in such jobs as waitress, hotel maid, or nursing home aide. By way of comparison, only 22 percent of all female workers were in service worker jobs in 1975. Displaced homemakers were far less likely to have clerical jobs than other women workers—17 percent compared with 35 percent. At the middle and top end of the job scale, 21 percent of all women workers had professional, technical, and administrative jobs in 1975; only 13 percent of the displaced homemakers were in these occupations.

NATIONAL DISPLACED HOMEMAKER PROGRAMS

Government programs to assist displaced homemakers are no more than a decade old. California's 1975 law established the Nation's first program designed specifically to serve women who had lost their main source of income due to a husband's death, desertion, or divorce or to loss of eligibility for public assistance, and who consequently had to find paid work to support themselves and their families.

The first Federal legislation to assist displaced homemakers was the 1976 amendments to the Vocational Education Act, which directed that States could use Voc Ed grants provided by the Federal Government to meet the needs of displaced homemakers. Next, the 1978 amendments to CETA specifically named displaced homemakers as facing disadvantages in entering the labor market, and made them a target group for employment and training. In addition, for fiscal year 1980, Congress provided a special $5 million fund under CETA for 47 demonstration projects serving displaced homemakers.

JTPA, passed in 1982, weakened Federal assistance to displaced homemakers; it made services to this group optional, instead of targeting them for special attention as CETA had done. Two years later, however, in the Carl D. Perkins Vocational Education Act of 1984, Congress strongly increased Federal support for displaced homemaker programs. The new law authorized about $84 million in fiscal year 1985 for Voc Ed grants that are specifically designated for services to single parents and homemakers—including displaced homemakers—and thus opened a large new source of Federal funds to displaced homemaker programs. Yet even with the increased Voc Ed funding, Federal support for employment and training services targeted directly to displaced homemakers remains at a very modest level for a program open to several million eligible people.

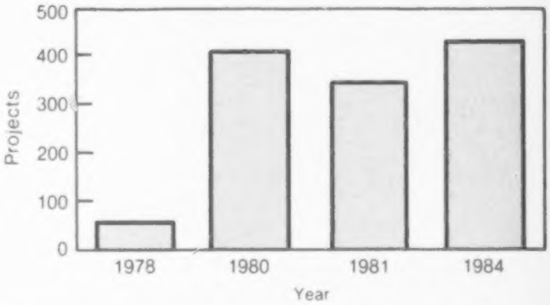
Meanwhile, by 1985, 24 States had enacted their own laws in support of displaced homemakers, with 19 appropriating funds for programs to benefit them. Although information about funding for displaced homemaker programs is incomplete, it appears that State support has grown over the past few years, and in 1984 was the major source of money for these programs.

Levels of Service and Funding

Exactly how many displaced homemaker projects exist across the country—in community colleges, in vocational technical schools, in community-based organizations such as YWCAs, in city or State agencies, or in independent centers—is uncertain, but there appear to be several hundred. The Displaced Homemakers Network, a national information exchange for the local centers, lists 425 such centers, but this is not a complete count.[13] It appears that the number of projects is expanding modestly, after a sharp decline in 1981-82. As figure 10-5 shows, displaced homemaker projects multiplied between 1978 to 1980; the number listed with the Displaced Homemakers Network rose from 50 to 407. With a drop in CETA funding in 1981, projects listed with the network also fell, to 337. By 1984, the number had once more risen.

The number of people served by the programs each year is likewise uncertain, but is probably at least 100,000. Displaced homemaker centers replying to a 1984 survey by the Network reported that they serve anywhere from 15 to 3,800 clients per year, with an average of 200 to 230 per program. According to the survey, increasing numbers of women are seeking services. A large majority of respondents said that both their funding and the number of clients they serve had risen over the previous year.

Figure 10-5.—Reported Number of Displaced Homemaker Projects in the United States, Selected Years



SOURCE: Surveys conducted by the Displaced Homemakers Network

Interviews with directors of 20 displaced homemaker projects in the spring of 1984 painted a less favorable picture—one of expanding demands for services but no corresponding increase in funds.[14] Sixteen of the directors said the number of clients they served had grown steadily; four reported their client load had remained relatively stable. Economic conditions had something to do with the demand for services. For example, one project director linked the rise in number of participants to layoffs in the steel and auto industries, which pushed homemakers into the breadwinner role. Four directors noted that outreach efforts were related to the growth in demand for services. Many displaced homemakers do not know that they can be defined as such, much less that there are programs designed to help them. Publicity in the community about the programs draws in these women.

As for funds, about equal numbers of the 20 project directors said their budgets had increased, decreased, or remained stable; one had been on a roller coaster, with budgets fluctuating between $300,000 and $40,000 over the past few years. Nearly all the project directors said there were displaced homemakers in their communities who were not being served, mostly because funds and staff were lacking. Two directors reported that they have continued to serve more clients each year as funding was cut, but are concerned about the quality of service as staff and resources are stretched thin. Others turned away applicants, or put them on a waiting list.

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[13] The 425 centers listed by the Network are those that replied to a 1984 survey, which was sent to over 900 organizations on the Network's mailing list. OTA analyzed the survey results. Of the projects that replied to the survey, 364 from 46 States and the District of Columbia provided enough usable data that their reports could be included in the analysis.

[14] The interviews were conducted by the Urban Institute under contract to OTA. Results are reported in full in O'Brien and Nightingale, op. cit.

The typical displaced homemaker center runs on very modest resources. Half of the 307 centers which reported their levels of funding to the Network survey said they operated on $41,000 per year or less, and two-thirds on $62,000 or less. Only one-sixth of the projects reported receiving as much as $100,000 per year. Almost certainly, these figures are understated. Many of the projects reported only cash funding, omitting in-kind contributions from community colleges or vocational technical institutes where they were housed. Nonetheless, on the whole, the survey supports the conclusion that these are lean programs, staffed by one or two full-time and one or two part-time people, with a few volunteers.

Sources of Funding

From the incomplete information available about displaced homemaker programs, it appears that Federal funds were their mainstay a few years ago, that these funds declined from 1981 to 1984, and that other sources—mainly special State funds—have recently been modestly increasing. With the passage of the Perkins Act late in 1984, a substantial new source of Federal funds became available for services to displaced homemakers.

In 1980, CETA was the main source of Federal funds for displaced homemaker programs. As shown in table 10-2, two-thirds of the displaced homemaker centers surveyed by the Network in 1980 reported that CETA was a provider of funds for them. About one-quarter cited Voc Ed grants (these are generally made up of two-thirds Federal money and one-third State). Thirty-one percent named State funds.

In 1984 the funding situation was quite different. Only 16 percent of the centers reported receiving funds from JTPA, CETA's successor. Special State funds were now cited by nearly half the centers as a source of support, and Voc Ed funds by more than 40 percent.[15] Private sources—foundations, corporations, and charitable organizations—had gained in importance, and were now mentioned by over one-third of respondents, compared with one-tenth in 1980.

Table 10-2.—Principal Sources of Funding for Displaced Homemaker Programs, 1980 and 1984

	Percent of programs reporting funds from source[a]	
Funding source	1980	1984
Vocational education	26%	43%[b]
CETA	66	N/A
JTPA	N/A	16
Special State funds	31	48[b]
Private[c]	N/A	37
Foundations and corporations	10	N/A
Other public funds	11	N/A
College	N/A	8
Other	N/A	25

N/A—Not available or not applicable.

[a] Percentages add to more than 100 because most programs report more than one source of funding.

[b] About 12 to 15 programs reported what were probably Voc Ed funds as State funds. If these apparent misstatements were corrected, the percentages would be more even—State funds 44 percent and vocational education 46 percent.

[c] "Private" sources in 1984 included corporations, foundations, and charitable organizations such as United Way.

[d] "Other" in 1984 included such sources as fees for services and informal fund-raising activities such as bake sales.

SOURCE: 1980 and 1984 surveys by Displaced Homemakers Network, OTA analysis of 1984 survey.

The actual *amounts* of funding from various sources over the past 4 or 5 years are harder to pin down. The Federal Government has never tracked either CETA or JTPA funds to their destination in local displaced homemaker centers, nor is there any information of this kind available for Voc Ed funds after the 1981-82 school year. From indirect evidence, it seems safe to conclude that JTPA/CETA funding shrank absolutely as well as relatively from 1980 to 1984. In the first place, CETA was a bigger program than JTPA. At CETA's high point in fiscal year 1979, appropriations were $10.3 billion, and were still as great as $7.6 billion in 1981. By contrast, JTPA appropriations for 1985 were $3.8 billion. Furthermore, JTPA does not target displaced homemakers as CETA did. Nor did Congress ever add to the $5 million it provided for national demonstration displaced homemaker projects in 1980. Indeed, only 15 of the 35 national demonstration projects operating in 1981 had obtained funds from other sources (mostly CETA and Voc Ed) to continue after the demonstration period. During 1981 there was also an apparent overall decline in the number of displaced homemaker programs, from 407 to 337.

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[15] It is probable that special State funds were somewhat overreported as a source of funding and Voc Ed underreported; some 12 to 15 of the respondents recorded what were probably Voc Ed funds as State-provided. If correction is made for this probable misstatement, it appears that the percentage of programs receiving Voc Ed funding and special State funding are about the same.

By 1984, Voc Ed grants were the main source of Federal funds for displaced homemaker programs. This source also probably declined in amount after the 1981-82 school year. Between 1979-80 and 1981-82 (the last year for which data are available) the Federal share of Voc Ed contributions to displaced homemaker projects rose, from $3.1 to $4.4 million. Afterwards, in all likelihood, it declined, since total Federal Voc Ed grants (of which grants for displaced homemaker services were a small part) were cut by one-third from fiscal years 1981 to 1983.

The Perkins Act of 1984 represents an important change in direction. Its authorization of as much as $84 million in one year for services to single parents or homemakers (including displaced homemakers) makes it likely that Voc Ed grants will be a much larger source of funding for displaced homemaker projects than in the past. So far as is known, the Voc Ed grants for services to this group never before totaled more than $4.4 million per year. Although the target group for the Voc Ed grants is now broader,[16] it is expected that displaced homemaker programs will be a major recipient. Moreover, the new law designates where Federal contributions are to go, in a way not done before. Previously, States were *allowed* to use Federal Voc Ed grants for assistance to displaced homemakers; some chose to give virtually nothing to these programs. The new law imposes mandatory set-asides for single parents or homemakers. Although displaced homemakers are not explicitly named in the set-aside, they are included in the category.

Results from the Displaced Homemakers Network's 1984 survey suggest that at that time no more than about one-quarter of the financial support for displaced homemaker programs was coming from the Federal Government. Table 10-3 shows the amounts and sources of funding reported by 307 programs in the survey. (Comparisons with 1980 are not possible, because information on amounts of funding by source was not collected in the 1980 survey.) Ten percent of the programs' funding came from JTPA, and another 19 percent from Voc Ed (recall that about two-thirds of this is Federal money). "Other" sources of funding—e.g., fees or informal fund raisers such as bake sales—were reported to provide as much money to these programs as JTPA. States emerged as the biggest contributors, providing about half of the projects' funds.

These figures should not be taken too literally. A few JTPA-funded projects were unable to distinguish services to displaced homemakers, so their records were not entered and their possible contributions went unrecorded. Also, JTPA was still less than 2 years old at the time of the survey; more recent evidence (discussed below) suggests that by 1985 a larger number of projects—but still definitely a minority—were able to take advantage of JTPA support. Moreover, some of the funds credited to special State funds in the survey returns may actually be Federal block grant or revenue sharing money. On the other hand, States were not specifically credited with their share of Voc Ed money.

It is interesting to note that displaced homemaker projects which reported getting JTPA funding were quite heavily concentrated in a few States. Of the 57 projects reporting some funds from JTPA, nearly half (28) were in just four States: Ohio had nine, Kentucky eight, Montana six, and Wisconsin five. This suggests

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[16] The drafters of the law used the term "homemakers" rather than "displaced homemakers" to give more latitude to States in providing services. Women who might foresee the necessity to find work outside the home can be helped to start training or a job search, rather than waiting till divorce, widowhood, or some other factor forces them to do so. The inclusion of "single parents" in the target groups opens the program more emphatically to men, and removes any requirement of marriage or dissolution of marriage, or of inexperience in the labor market. The effect is to open the program both to all working single parents and to parents (mostly mothers) on welfare.

Table 10-3.—Funding for Displaced Homemaker Programs, by Source, 1984

Funding source	Amount of funds in $1,000	Percent of total	Number of programs reporting[a]	Average funds per program in $1,000[b]	Median funds per program in $1,000
Vocational education	$ 3,787.1	19%	133	$28.5	—
JTPA	2,025.3	10	45	44.0	—
Special State funds	10,078.7	51	151	66.7	—
Private	1,590.1	8	64	24.8	—
College	278.1	1	19	14.6	—
Other	2,149.6	11	72	29.9	—
Total	$19,908.9	100%	307	$64.9	41.0

[a] "Programs reporting" in this table means those that reported the amount of funds received, by source. The sum of programs reporting is more than the total number of programs reporting, because most programs had more than one source of funds.

[b] "Average" is the arithmetical mean.

[c] "Private" sources included corporations, foundations, and charitable organizations such as United Way.

SOURCE: 1984 survey by Displaced Homemakers Network and OTA analysis of the survey.

that someone in those States—possibly the State JTPA director(s) of training projects at the local level—took early advantage of the options JTPA offers for supporting displaced homemaker services.

Overall, the survey results probably give a reasonably accurate impression of where the money came from in 1984. Information from other sources was consistent with the survey findings. Six of the twenty project directors interviewed by the Urban Institute said that they currently had JTPA support, but of those, three mentioned sharp reductions in level of funding in the changeover from CETA to JTPA. (At least one director, however, foresaw an opportunity for increased funding through JTPA.) Six project directors also specifically mentioned that their Voc Ed funds had been shrinking, in some cases drastically. (These comments were made before the passage of the Perkins Act.)

In general, States seem to have taken over a major role of provider for displaced homemaker programs. Although support has weakened in some States (e.g., California's law expired in 1983 and was not renewed), it is rising in others. In the 19 States providing funds as of 1985, the typical contribution was something between $100,000 per year to $500,000, although six States provided more than $500,000 and two over $1 million. The number of projects funded ranged from 3 to 25.[17]

Some States have found ingenious ways to fund the programs. For example, Idaho, Montana, and North Dakota have inaugurated several new displaced homemaker centers with funds derived from a tax on divorce filing fees. Minnesota and Washington earmark money from marriage licenses as well as from divorce filing fees. New Jersey is considering setting aside $1 million per year from the State lottery for displaced homemakers. New York has a funding scheme, begun in 1979, which allocates to displaced homemaker programs money from a special account in the State's unemployment insurance trust fund. (The account is made up of interest and penalties on delinquent taxes due to the fund from employers.) Contributions from this account have risen steadily, reaching $1.6 million in 1984-85. The State supports 14 displaced homemaker centers from the account; three of them opened in 1984.

Some of the States with unusual sources of funding for displaced homemaker programs are considering supplementing or perhaps replacing them with regular legislative appropriations, so as to have a more reliable level of funding. In New York, for example, the special UI account that funds displaced homemaker projects is being depleted. Some States are finding that divorce filing fees are a rather small and irregular source of funds.

JTPA and Displaced Homemaker Projects

The two major sources of Federal support for services to displaced homemakers are Voc Ed grants and JTPA. Even before passage of the Perkins Act, Voc Ed grants were the bigger contributor. With the major changes in the new law, Voc Ed grants are likely to assume still greater importance. For two reasons, however, access to JTPA services remains important for displaced homemakers. First, although there is a good deal of flexibility in both the JTPA and the Voc Ed programs, JTPA more strongly emphasizes job search assistance and prompt employment, while the primary focus of Voc Ed is on training. For many displaced homemakers, getting a job as soon as possible is imperative. Projects that have placement as their central goal may serve their needs best.

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[17] Displaced Homemakers Network, *Displaced Homemaker State Legislation* (Washington DC: The Network, 1985).

Second, despite the increased funding designated for services to single parents or homemakers under the Perkins Act, the amounts involved are still relatively small for a training, education, and employment program open to millions of people. No estimate has been made so far of the number of single parents or homemakers eligible for Voc Ed programs which were authorized at approximately $84 million per year, and were funded at about $63 million for fiscal year 1985. The population of displaced homemakers is estimated at about 2 to 4 million; if the two-thirds of the fiscal year 1985 Voc Ed grants for single parents or homemakers were spread over this group alone, they would amount only to about $10 to $21 per person per year. For comparative purposes, consider the JTPA Title III program for dislocated workers, funded in fiscal year 1985 at $223 million and open to roughly 3 million workers. If every eligible person took advantage of the Title III program, the funding would amount to about $70 per capita. Another comparison may be made with the general CETA programs which served a population of about 16 million disadvantaged workers in 1980 and were funded at about $4 billion, or approximately $250 per capita.[18]

The foregoing comparisons are only illustrative. It is unrealistic to suppose that every eligible person will be served in an employment and training program. (In fact, about 1,377,000 disadvantaged workers participated in CETA's general employment and training programs in 1980, at a cost of approximately $2,900 per person. Under JTPA Title III, 132,200 workers participated during the 1984 program year, June 1984-July 1985, at a cost of $895 per worker.) The point remains however, that despite the remarkable new infusion of Federal funds for services to displaced homemakers in the Perkins Act, funding for these programs is relatively thin.

By early 1985, it appeared that use of JTPA funds to support services to displaced homemakers might be increasing, but was still not a principal source of support. In the first months of that year, the Displaced Homemakers Network queried the 425 projects listed in its directory on their experiences with JTPA. Replies came from 176 projects, of which 55 reported that they had JTPA-funded contracts and 121 said they had not.[19] This compares with replies to the Network's 1984 survey the previous year, in which 355 projects reported sources of funding and 57 said they got some funds from JTPA.

The amount of JTPA money devoted to services for displaced homemakers in the 55 projects is uncertain, because only one-quarter of the projects' contracts served displaced homemakers exclusively; three-quarters served other clients as well. About half the projects reported they were serving small numbers of displaced homemakers—1 to 20 over the life of the contract, which was usually a year. Figure 10-6 shows the distribution of dollar amounts of JTPA contracts in the 55 projects, and figure 10-7 the distribution of numbers of displaced homemakers served.

These data indicate that the typical JTPA-funded project serving displaced homemakers serves other clients as well. This works well for some displaced homemakers but, as discussed later in this report, many of these women benefit from services designed ex-

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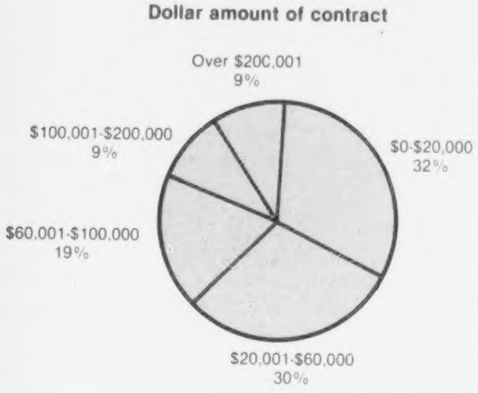
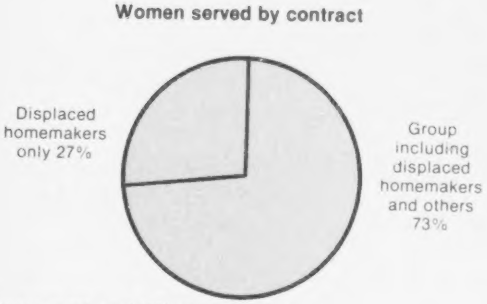
[18] The funding of $4 billion for fiscal year 1980 refers only to the general training and employment programs open to all eligible disadvantaged workers; it omits programs for special populations such as the Job Corps and the Native Americans, migrant and seasonal farmworkers, and dislocated workers programs. Total CETA funding in 1980 was $8.1 billion.

[19] Displaced Homemakers Network, *Services to Displaced Homemakers Under JTPA, Preliminary Figures 4/85* (Washington DC: The Network, 1985).

Figure 10-6.—Services to Displaced Homemakers Under JTPA Contracts, Dollar Amount of Contract and Women Served, April 1985



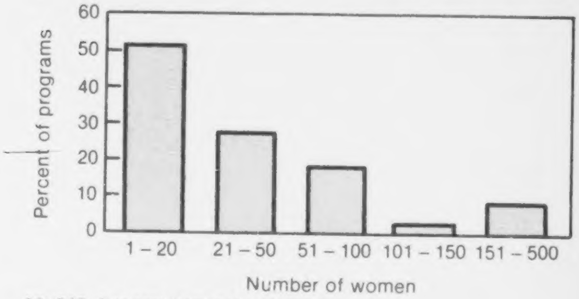
Dollar amount of contract



Women served by contract

Note: Total may not equal 100% due to rounding.
SOURCE: Displaced Homemakers Network.

Figure 10-7.—Services to Displaced Homemakers Under JTPA Contracts, Numbers Served, April 1985



SOURCE: Displaced Homemakers Network.

pressly to meet their needs. Unlike workers displaced from factories or offices, a great many displaced homemakers lack recent work experience; often they are less confident, and less attractive to employers, than someone with a long stable history at a paid job. The sudden loss of personal and financial support that displaced homemakers have undergone can also compound the job readiness problem. They may do better in special projects than in larger mainstream employment and training projects, or in general women's programs. So far, most JTPA-funded projects do not serve displaced homemakers as a special group.

A serious eligibility issue arises in the use of JTPA Title IIA funds for displaced homemakers. The Title IIA program is intended primarily to serve economically disadvantaged people; the problem is how to serve displaced homemakers who do not qualify as economically disadvantaged. According to the law, the term economically disadvantaged includes people who are on welfare or receiving food stamps, or whose family income in the previous 6 months was either below the federally established poverty level, or was no more than 70 percent of the lower living standard income level (whichever was higher). Often a newly displaced homemaker's family income for the previous 6 months, when she still had her husband's income support, is too high to meet the JTPA requirement. Even though her income may have been drastically reduced by the time she applies for services, she is still ineligible. Also, many displaced homemakers need assessment, counseling, and job search assistance services even when their income continues to exceed the JTPA limits.

It is possible to serve people who are not economically disadvantaged under JTPA. Title III, for displaced workers, has no income limits; but the definition of displaced worker in the act does not necessarily and obviously extend to displaced homemakers. Several States do serve displaced homemakers under Title III, reasoning that many of them fit the definition of long-term unemployed. (See ch. 5 for a discussion of eligibility for Title III programs.) Florida has even included Title III services to displaced homemakers in the 2-year coordination plan that States must submit to qualify for JTPA funds. Florida's plan allows increased costs per placement for displaced homemakers, taking into account their needs for more extensive training and services.[20]

Title IIA, which has the largest appropriation of any part of the law, makes some provision for people who are not economically disadvantaged, but face employment barriers. Roughly 10 percent of Title IIA funds can be spent for service to these groups. Displaced homemakers are among the 10 groups named in the law as examples of those eligible for the 10-percent-window money. Anecdotal evidence suggests that although some States are in fact using the 10 percent money to serve hard-to-employ groups (including displaced homemakers), most are not. Instead, they are saving the money to pay back the Federal treasury in case any of the people they have already served as eligible are disallowed on audits. People who are above JTPA's low-income level may also qualify for a portion of the employment and training services which State education agencies provide with JTPA money, under cooperative agreements with JTPA agencies. Some States (Wisconsin is an example) have taken an active lead in using this education set-aside money for service to displaced homemakers.

Theoretically, all displaced homemakers, without regard for income, were eligible for—but not necessarily entitled to—JTPA Title IIA programs that were funded at about $177 million in fiscal year 1985. The remainder of the general program for disadvantaged adults and youth, funded at $1.5 billion, was also open to those meeting the income limits. Some services under Title III, funded at $223 million in 1985, were also available to displaced homemakers, without regard to income. The JTPA funds actually spent on services to displaced homemakers is not known, but is surely no more than a small fraction of these amounts. As table 10-3 shows, projects replying to the Displaced Homemakers Network 1984 survey reported receiving $2 million in JTPA funds. This figure is undoubtedly too low; many projects did not report amounts of funding, and also JTPA was a new program in 1984. However, the Network's 1985 survey on experiences with JTPA indicated that it was still true that only a moderate number of displaced homemaker projects, and a modest amount of services, were paid for by JTPA funds.

In interviews, directors of local displaced homemaker projects repeatedly mentioned the low-income requirement as a drawback of JTPA funding. They added that in some States restrictive definitions as to who is a displaced homemaker puts up more barriers to entry to JTPA projects. (The Federal Government leaves it to the States to define displaced homemakers, both for the Voc Ed program and JTPA.) One displaced homemaker center reported that it sent 200 income-eligible women to a JTPA Service Delivery Area for employment and training assistance, and only 17 were enrolled, because the State definition of displaced homemaker was so restrictive as to how much the woman could have earned over the past few years.[21]

Answers to the Network's 1985 survey offer additional insights into why more projects do not tap into JTPA as a source of funding. Of the 121 projects which reported they had no JTPA contracts, 11 had tried for one and been turned down. The rest did not bid. The reason most commonly given was lack of information—a feeling of being too far removed from the local JTPA system to try for funds. The main reasons given by the 110 projects which did not bid, and the numbers of projects giving the reasons, are as follows:[22]

- *Lack of information:* our project is not sufficiently tied into the local JTPA system (39).
- *Displaced homemakers not targeted:* the Private Industry Councils (PICs) which are responsible for direction of local JTPA programs are not funding programs for spe-

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[20] Paula Roberts, Center for Law and Social Policy, memorandum to People Interested in Women and JTPA on an analysis, by the Coalition on Women and JTPA, of the Governors' JTPA Coordination Plans for Program Years 1984-86.

[21] Information provided by Displaced Homemakers Network.

[22] Displaced Homemakers Network, *Services to Displaced Homemakers Under JTPA, Preliminary Figures 4/85* (Washington DC: The Network, 1985).

cial populations but are "mainstreaming" service delivery instead (36).

- *Services not being funded:* PICs are giving contracts for vocational skills training, which is not our project's focus (30).
- *Eligibility:* displaced homemakers are not being served under the 10 percent "window" for people who face barriers to employment but are not low income (29).
- *Performance-based contracts:* Many JTPA contracts do not pay the contractor until the client is placed in a job, but our project cannot wait that long to be paid (22).
- *Community-based organizations:* these organizations, which often provide services specifically designed for displaced homemakers, are not getting contracts (20).
- *Eligibility:* displaced homemakers are not qualifying as economically disadvantaged (19).
- *Performance standards:* the job placement rate set by the U.S. Department of Labor for JTPA training, and adapted by States, is too high (16).

The Perkins Act and Displaced Homemakers

Under the Perkins Act, Federal Voc Ed grants may continue to be a larger and more reliable source of funding for displaced homemaker programs than JTPA. In the Perkins Act, Congress unequivocally designated funds for the use of single parents or homemakers, including displaced homemakers. Two programs under the act have mandatory set-asides for this group:

- 8.5 percent of basic grants to States—the major program funded by the act, authorization of $835 million for fiscal year 1985 and funded by Congress at $783 million—*must* be spent for services to single parents and homemakers;[23] and
- 50 percent of the services in a new, smaller program to encourage retraining and reemployment of adults—authorization of $35 million but not funded by Congress in fiscal year 1985—*must* be delivered to single parents and homemakers.

In addition to the programs that can directly benefit displaced homemakers, two more provisions of the act are of particular interest:

- 3.5 percent of basic State grants *must* go to sex equity programs, which are designed to eliminate sex bias and stereotyping in vocational education, to help prepare young women for well-paying jobs, and to help prevent the emergence of more displaced homemaker problems in the future; and
- community-based organizations, which often serve displaced homemakers very effectively, may get special funding—authorized at $15 million but not funded by Congress in fiscal year 1985—to provide Voc Ed support programs.

The women's programs in the Perkins Act—both the set-asides for single parents and homemakers and the sex equity programs for girls and young women—are tied very specifically to the goal of helping women overcome barriers to entering or reentering the job market. To make use of set-aside grants, displaced homemaker projects presumably will not have to compete with other worthy aims or target groups, nor will they have to persuade skeptical PICs or State JTPA managers that there is a place for employment and training projects designed to meet the particular needs of former homemakers. That, at least, is how the program is supposed to work. In reality, there may be some hitches.

When the Perkins Act was under consideration by Congress in 1984, most State directors of vocational education strongly opposed designation of specific uses for Federal Voc Ed grants. They much preferred contributions on the block grant model. In the event, however, Congress reserved 57 percent of basic State grants for specific uses. Targeted groups and programs, besides single parents and homemakers and sex equity programs, are the economically disadvantaged (22 percent of basic State grants), adults (12 percent), the handicapped (10 percent), and criminal offenders in correctional institutions (1 percent).

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[23] Up to 7 percent of basic State grants may be used for State administration expenses. Of the balance remaining, 57 percent is designated for specific uses, including the 8.5 percent for single parents and homemakers.

In 1985, States were still sorting out how to comply with these designations. Some State Voc Ed administrators were planning to establish or add support for projects designed to serve displaced homemakers. In others, it was not yet clear what the response would be to the law's requirement that States use the specified part of their Federal grants to "meet the special needs" of single parents or homemakers.

Overall, despite some initial confusion or reluctance on the part of some education officials to change past ways of allocating funds, the Perkins Act undoubtedly opens new opportunities to projects serving displaced homemakers. Despite the broadening of the population to be served, to include single parents as well as homemakers, there is little question that States will have more Voc Ed funds than ever before to serve displaced homemakers. A Maryland official reported, for example, that her State was allocating $100,000 of Federal Voc Ed funds to adolescent parents—but was reserving $867,000 for displaced homemakers, for whom no more than $200,000 had ever been available in any year before.

Congress appropriated $782.5 million for basic State grants under the Perkins Act for fiscal year 1985; about $63 million of this was set aside for services to single parents and homemakers. Congress did not provide funds in fiscal year 1985 for the new adult training and employment program authorized under the act, half of which would be directed to serving single parents and homemakers, nor did it provide the special funding for community-based organizations.

Opportunities Under the New Law

Various sections of the Perkins Act spell out a broad range of fundable activities. In one place or another, it authorizes the use of Federal grant money to provide most of the services that displaced homemaker program directors see as necessary for their clients. The main purpose of the law, however, is to support vocational training, and it is training that receives most emphasis. The bulk of Federal Voc Ed funds are provided in basic grants to the States, of which 8.5 percent (after a deduction for State administration costs) is reserved for single parents and homemakers. States may use this portion of basic grants only for the following purposes:

- paying for vocational education and training, including basic literacy instruction, that will furnish single parents and homemakers with marketable skills;
- making grants to educational agencies and postsecondary schools to expand vocational education services to single parents and homemakers, so long as the expansion will result in providing marketable skills to the target group;
- making grants to community-based organizations that have proven their ability to provide effective vocational education to single parents and homemakers;
- assisting single parents and homemakers with child care and transportation expenses;
- scheduling programs to be more accessible to single parents and homemakers; and
- providing the target group with information about the vocational education and support services open to them.

The basic State grants that are not specifically designated for target groups may be used for many other purposes related to vocational education, such as:

- counseling, including self-assessment and career planning and guidance;
- placement services for students who have successfully completed vocational education programs; and
- stipends for students who have "acute economic needs" which cannot be met under work-study programs.

The new program in the Perkins Act (authorization of $35 million) which offers special encouragement for adult training, retraining, and employment development programs was not funded.[24] This program was designed with an emphasis on cooperation with employers and placement in jobs, and half of it is designated for single parents and homemakers. Among the services this new program may support, if and when it is funded, are:

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[24] In a supplementary appropriations bill passed in August 1985, the Senate voted to appropriate $15 million in fiscal year 1985 for the adult training and employment program, but the House did not, and the provision was dropped in conference. Congress did not fund this section of the act for fiscal year 1986.

- education and training programs designed cooperatively with employers, such as apprenticeships, on-the-job training, customized training;
- entrepreneurship training;
- counseling and job search assistance; and
- information and outreach to encourage participation by eligible adults, especially women, older workers, people with limited English proficiency, the handicapped, and the disadvantaged.

Finally, the Perkins Act emphasizes training for young women in secondary and postsecondary schools in nontraditional occupations, setting aside 3.5 percent of basic State grants for the program. The purpose is to give young women an alternative to low-paid, traditionally female jobs.

Although displaced homemaker projects using Voc Ed funds are usually located in community colleges or vocational-technical institutes, they do not have to be. For example, some community-based organizations, such as the YWCA, receive Voc Ed funding for displaced homemaker projects. Although the Perkins Act authorizes special funding (up to $15 million in fiscal year 1985) for Voc Ed support programs to be provided by community-based organizations, Congress did not fund this part of the act in fiscal year 1985.[25] Even when the section is funded, States are not required to deliver services through community-based organizations. One service authorized by the Perkins Act which does not seem a likely candidate for funding by States is stipends to Voc Ed students. The 1976 Voc Ed law, which the Perkins Act replaced, specifically named displaced homemakers as possible recipients for stipends, but very few were ever provided by the States.

The law requires that every State receiving Voc Ed grants designate one person to administer the program for single parents and homemakers and the sex equity program, and spend at least $60,000 per year for administering the women's programs. In most States, the administrator is the Sex Equity Coordinator, a middle-level official in the State Voc Ed hierarchy. How much real authority this official is given, and how effectively she or he uses that authority, will determine to a considerable degree whether the opportunities the law opens up are realized.

Altogether, the list of services that may be offered under the new Voc Ed act is impressively broad and flexible, yet the focus on vocational training is clear. The services most prominent in JTPA—training in job search techniques, job development and job matching, on-the-job-training—are not emphasized to a great extent except in the new adult training program which was not funded in fiscal year 1985. Relocation assistance is not offered at all. Neither is education toward an academic degree. The fact that most displaced homemaker projects funded by Voc Ed funds are physically located in educational institutions, and often are run by someone on the school's staff, probably discourages many displaced homemakers who urgently need a job from applying for services. JTPA, insofar as it serves displaced homemakers, plays a different and complementary role.

Data Collection

An issue of special concern to Sex Equity Coordinators in 1985, as States were gearing up to implement the new law, was data collection. Information about displaced homemakers and programs set up to serve them is extremely deficient. In 1976 the Women's Bureau of the Department of Labor attempted a nationwide count of displaced homemakers, and the 1983 report of the Urban Institute for the U.S. Department of Health and Human Services, Administration on Aging, made another national estimate, with additional information on services available to displaced homemakers. As mentioned, the estimates developed for OTA for four selected years from 1975 to 1983 are the only existing national estimates covering more than 1 year. In addition, many States have no idea of how many displaced homemakers they have, or the extent of services that may be needed.

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[25] Although Congress did not provide funds for support services to be offered by community-based organizations in fiscal year 1985, an appropriation of $7.5 million was voted for fiscal year 1986, and was signed into law.

Systematic evaluations of displaced homemaker programs—some of which are over 10 years old—do not exist. Even noncomparative reports on outcomes of individual projects—how many participants went into training, how many got jobs, what kind of jobs at what kind of wages—are scarce. Studies of program impacts, similar to those for displaced workers served under the Manpower Development and Training Act of 1962, or for disadvantaged workers under CETA, have never been done. The largest study in existence was descriptive, not evaluative; it gave an account of the national demonstration displacement homemaker program (consisting of 47 projects) funded under the special CETA demonstration grants in 1980.[26]

The Perkins Act does not contain specific reporting requirements about single parents and homemakers. It requires that States submit to the U.S. Secretary of Education a vocational education plan, initially covering 3 years and afterwards 2 years, which includes an assessment of the special needs of target groups, and assurances that the State will comply with the requirements of the law in meeting those needs. The U.S. Department of Education does not require any reports, other than the general assurances contained in the State plans, on what States are doing to serve single parents and homemakers.

The Perkins Act directs the Secretary of Education to conduct applied research on aspects of vocational education specifically related to the act, including effective methods for providing quality vocational education to single parents or homemakers (among other target groups). In 1985, the Department of Education had no plans to carry out a study of this kind. The department must conduct a long-term national assessment of vocational education under the act (including services to targeted groups), but the final report is not due until January 1, 1989, 9 months before the expiration date of the Perkins Act.

Meanwhile, many of the State Sex Equity Coordinators see an urgent need for systematic collection of information on how many people qualify for services under the women's programs, how many actually are served, what their characteristics are, and what happens to them after they receive education, training, and employment assistance. The coordinators see these data as essential for writing State reports, at the end of the first 3-year planning cycle, to explain to Congress the effects of the new law, and the new emphasis on service to single parents and homemakers. Accordingly, at their 1985 annual meeting (which they organized and convened themselves) a group of State coordinators laid plans for an unprecedented program of consistent, nationwide data gathering. The Voc Ed departments of the cooperating States will pay for the program, which is being developed under the leadership of the Maryland and Wisconsin Sex Equity Coordinators.

The Maryland Department of Vocational Education has set aside funds for developing a computer program which will include these major items:

- a count of single parent/homemaker/women clients, including those in regular vocational education classes (so far as possible) as well as those in special programs;
- a profile of clients, including factors such as age, education, amount and source of income, number and age of children, adolescent parentage;
- an account of the services the client receives—what type, how often, how many hours of service;
- outcomes after service, including details on quality of employment such as wages, occupational category, full- or part-time work; and
- a 1-year follow-up on outcomes.

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[26] Deborah Kogan, Lois Greenwood, and Mary Vencill, *Assessment of the National Displaced Homemaker Program: A Cross-Project Analysis* (Berkeley, CA: Berkeley Planning Associates, 1981).

Maryland officials expect the system to be in place by July 1, 1986, and anticipate that at least 30 States will buy into the program. The result will be a rich and consistent set of data covering many if not all States.

At the same time, the national Displaced Homemakers Network is offering to every State a relatively inexpensive service, worked out with the U.S. Bureau of the Census and based on the 1980 census, to provide a profile of single parents and homemakers within the State —and within Metropolitan Statistical Areas if desired. Characteristics of the population to be covered include age, race, education, income, type of displacement, number of dependent children, and labor force participation.

Definition of Displaced Homemakers

In the Perkins Act, "homemaker" is defined as an adult who has worked as an adult primarily without renumeration to care for the home and family, and for that reason has diminished marketable skills. The law adds, however, that the U.S. Secretary of Education may not prescribe the manner in which the States comply with "the application of the definition." The law further specifies that State plans shall provide assurances that in serving single parents and homemakers, the State will emphasize assistance to those with the greatest financial need; and in serving homemakers the State will give special consideration to "homemakers who because of divorce, separation, or the death or disability of a spouse must prepare for paid employment." This is the guidance the law provides as to who gets service as a "homemaker," and who is at the front of the queue.

Since the Perkins Act is barely in operation yet, it is hard to say whether differences in State definitions of homemakers will make for marked differences among States in who gets served. As noted above, anecdotal evidence suggests that differences in definition are important in determining who receives services under JTPA. In some States it is proving quite difficult for displaced homemakers to get assistance under JTPA, because even if they pass the hurdle of income qualification, they may still not meet a restrictive State definition of displaced homemaker.

DESIGN AND PERFORMANCE OF DISPLACED HOMEMAKER PROJECTS

Displaced homemakers entering the job market need all the same services as workers displaced from paid jobs, and often more. Generally, these women lack the long stable work history of displaced workers, and some have no work experience at all outside the home. A substantial number (about 15 percent) are mothers receiving public assistance who are about to lose their eligibility because their last child is nearing the age of 18. Some of these women are seriously handicapped in getting a job because of lack of skills or education. Other displaced homemakers have held good jobs or had an excellent education, but their skills may be rusty or obsolete, or they may lack confidence after a long spell out of the job market. Many who have developed valuable skills in volunteer jobs need help in exploiting those skills for a paid job. In addition to the practical difficulties of finding work, many displaced homemakers must struggle with feelings of abandonment and personal inadequacy. The majority have gone through divorce or separation, or are widowed.

Anecdotal evidence suggests that the displaced homemaker projects of the last 10 years have helped many of these women gain confidence, learn job search skills, get training, and find jobs. Because systematic studies of the project results are lacking, this kind of evidence is the best we have. Likewise, knowledge about what program elements are most important and successful in assisting displaced homemakers comes mostly from accounts of women who went through the programs and observations of project directors. The national Displaced Homemakers Network, which is in touch with hundreds of individual projects throughout the country, has distilled information on what constitutes a comprehensive program of services to displaced homemakers (see box 10-A). State officials dealing with displaced homemaker programs (often the Sex Equity Coordinators in the States' vocational education systems) are also sources of information on what works best in helping these women find adequate jobs.

OTA has added some recent informed observations to these accounts. In 1984, an OTA contractor interviewed by telephone 20 directors of selected local displaced homemaker projects throughout the country, discussing the kinds of services the projects offer and their effectiveness. Although they were not a true statistical sample, the projects were of different types and sizes in a variety of geographic locations. OTA's contractor also conducted brief telephone interviews with the person responsible for overseeing displaced homemaker programs (usually the Sex Equity Coordinator) in each of 16 States. Another source of information about the operation of displaced homemaker projects is the 1984 survey conducted by the Displaced Homemakers Network and analyzed by OTA.

From these various sources it is possible to draw a few conclusions, at least tentative ones, concerning displaced homemakers and the programs designed to serve them.

Characteristics of Displaced Homemaker Projects

In size and structure, the projects vary a great deal. The range of funding among programs in the Network's survey is from $2,000 per year to $862,000, and clients served range from 14 to 3,800. In some States (e.g., Texas and Oklahoma), services are offered mostly through the State vocational-technical school systems. Others fund programs in many kinds of organizations, including women's groups and YWCAs. Some, like New York and New Jersey, encourage the development of special purpose projects targeted to such groups as Hispanics, Haitians, rural women, and older women. Some concentrate on outreach. For example, Wisconsin makes special efforts to reach women on Indian reservations and in black neighborhoods. Washington State has a toll-free number where women can call for help.

The greatest points of similarity among these projects are in defining the clients they wish to serve—women whose main job has been homemaker but must now take on the role of family provider—and in providing the special help that their clients need to bridge the gap between home and work.

Location of Project

Half of the projects in the survey were located in educational institutions—community colleges or vocational-technical schools—where they could draw directly on the educational and training programs of the host institution. Community-based organizations such as women's centers or YWCAs housed approximately one-quarter of the projects. The rest described themselves as "independent" or "other" (e.g., a university counseling program, or a State agency).

Characteristics of Clients

The population is quite diverse. The 20 directors of local projects reported in interviews that the age of their clients ranges from 16 to 67, with the majority between 35 and 55. The average age tends to be lower in the south and in rural areas, where women tend to marry younger. According to half of the project directors, their typical client has a high school education. Others reported a wide range of education, some serving clients who mostly have some college or a degree, and others serving disadvantaged women, half of whom have not completed high school. The clients also come from all kinds of economic backgrounds, from poverty to affluence. However, at the time these women come to the projects for assistance, most are trying to survive on very low incomes. The affluence is usually former, not current.

Project directors consider it important to offer services that are comprehensive and flexi-

Box 10-A.—Comprehensive Services to Displaced Homemakers: A Policy Statement by the Displaced Homemakers Network

People who have worked in displaced homemaker programs over the last 10 years agree that the best programs offer a wide range of services, tailored to the special needs of displaced homemakers and putting foremost the goal of job placement. In the absence of systematic evaluations, the observations of experienced project directors are the best guide to what works in these programs, and what is less effective. The national Displaced Homemakers Network, through its contacts with hundreds of projects and its familiarity with their experience, has compiled a comprehensive list of the elements an outstanding program should include. OTA's research confirms that most of these elements are necessary for a well-rounded program: many of them are discussed in the text of this chapter. There follows the program policy statement of the Network:

> The Displaced Homemakers Network believes that a comprehensive displaced homemaker program provides or secures the following component services that have been identified as meeting the unique needs of displaced homemakers. While every program may not have all of these components, it is an ideal to be worked toward. Job placement is a top priority and ultimate goal of program services:
>
> - **Outreach.** Adequate outreach that specifically targets displaced homemakers, and is matched to the racial/ethnic/age distribution of the displaced homemakers in the geographic area being served; in rural areas, may require itinerant programming [periodic delivery of services to displaced homemaker in remote, scattered areas].
> - **Intake/Orientation.** Procedures that recognize the lack of confidence common to displaced homemakers and the need for an immediate positive experience; orientation procedures that provide displaced homemakers with an introduction to the program and especially to other participants.
> - **Personal Counseling.** Individual personal counseling, guided support groups, crisis intervention services, ongoing counseling both on a regular and as-needed basis, and appropriate referrals to mental health professionals and alcohol/drug abuse programs.
> - **Assessment and Testing.** A balanced use of interest inventories, skill testing, work samples, educational assessments, employability development plans, and other instruments and activities useful to adult women, with an emphasis on self-assessment and personal decisionmaking, and the identification and transfer of skills developed in homemaking, child-rearing, and volunteer work to the paid labor force.
> - **Career/Educational Counseling.** Activities and resources presenting a broad range of career and educational options in the context of local labor market data, and including information about nontraditional jobs, vocational training, basic education, high school equivalency, financial aid, and short-term as well as traditional programs.
> - **Life Skill Development.** Workshops on assertiveness training, single parenting, short- and long-range planning and goal setting, financial management, dressing for the labor force, health concerns of mature women, and other requested topics.
> - **Skills Training.** Access to skills training programs (including classroom training, internships, and on-the-job training) in both traditional and nontraditional areas.
> - **Pre-Employment Preparation.** Activities to prepare for finding and keeping a job, such as preparing a resumé, filling out job applications, taking tests, handling interviews, and negotiating salary; discussions of rights and responsibilities on the job.
> - **Supportive Services.** Needed services such as stipends, transportation allowances, books, arrangements for child care, emergency loan fund, clothes, tuition, equipment, and tutoring.
> - **Referrals.** Initial referrals and follow-up advocacy for such services as legal aid, health care, housing, debt management, and vocational rehabilitation.
> - **Job Development/Placement.** Outreach to potential employers, advocacy with employment services, direct program placement, guided job clubs, assisted self-placement; adequate follow-up and continued support.
> - **Program Management.** Staffing that reflects the racial/ethnic composition of the geographic area served and that includes former displaced homemakers at all levels; appropriate management information systems that include up-to-date client files and monthly compilation of data on client characteristics and program results; public information activities to educate potential employers and the general public on displaced homemakers' needs and skills; appropriate linkages with other agencies; and fiscal accountability.

ble enough to meet the needs of many types of clients; most do not offer separate program components for different subgroups. There are exceptions however. Three projects have set up separate counseling and support groups for widows and for divorced or separated women. The groups did not work well together. Widows were offended by the other women's negative attitudes about their former husbands, and tended to drop out of the program, until they were given a group to themselves.

A few projects have recently begun special programs, usually supported by State funds, for women who are receiving Aid to Families with Dependent Children (AFDC, or welfare). One center in Texas is providing intensive prevocational and job training for AFDC mothers. Another in Massachusetts is sponsoring a program for welfare mothers who never completed high school which combines personal and job-related counseling with classroom instruction in general educational development (GED), leading to a high school diploma.

Most of the project directors felt the need to reach out more effectively to groups of displaced homemakers who are not being adequately served, especially rural and minority women. A project in Connecticut was able to involve Hispanic women in project activities through a Hispanic outreach counselor. Other project directors expressed a desire for bilingual counselors, and also for staff who can reach black and other minority women who might not know about the projects, or might be reluctant to go for help to a white, suburban college campus.

Rural women are not only hard to reach, but have special needs for service. Many have no local public transportation and few if any local job opportunities. Some may benefit from special assistance in creating their own jobs or businesses.

Eligibility

Most of the project directors interviewed reported that their eligibility requirements for clients are informal. The Network's survey underscored the point: only about half the respondents reported any eligibility requirements. If limitations existed, the ones most frequently cited were that the client had spent some years primarily as a homemaker, and had lost her main source of income support. Some projects responded that participants had to meet either a definition laid down by a State law, or requirements of a funding source.

As discussed previously, clients of projects funded under JTPA usually have to meet the economically disadvantaged criterion which applies to Title IIA programs. Several of the project directors who receive funding from JTPA expressed concern because they have to turn away displaced homemakers in need of assistance who do not fit the definition. Despite the exceptions under JTPA to the income limitations, projects that have JTPA funding are bound by the terms of their individual contracts, which may not make any exceptions. Under the Carl D. Perkins Vocational Education Act, Federal funding to displaced homemakers has no income limitations, although States in their vocational education plans must provide assurance that they are serving displaced homemakers who are in financial need.

Services Offered and Their Effectiveness

The range of services provided by different displaced homemaker projects varies from counseling and referral only to comprehensive multi-component programs which cover all aspects of the home-to-work transition, from intake and assessment to follow-up after placement in a job. As a guide to project managers, the national Displaced Homemakers Network has compiled a comprehensive list of the services that it considers to meet the unique needs of displaced homemakers (see box 10-A).

Services provided in displaced homemaker programs overlap and interconnect, but for the sake of simplicity can be grouped as follows:

- *Personal counseling:* includes one-to-one or group counseling, peer support groups, and workshops on self-awareness and assessment.
- *Job readiness:* includes skills and aptitude assessments, job counseling, academic

counseling, provision of labor market information, referrals to other local job search agencies, assistance in preparing resumés and filling out job applications, and mock interviews.
- *Education and training:* includes courses in brush-up on the basics, GED preparation, English as a second language, onsite skills training, on-the-job training, work experience, career internships, and referral to educational or training programs.
- *Job placement:* includes maintenance of job banks, job development, job matching and referrals to local job openings, and follow-up.
- *Support services:* includes seminars on topics of practical interest (e.g., money management, taxes, insurance), child care, transportation assistance, emergency loans, training stipends (if any are available), and scholarship funds.

Most of the 20 project directors agreed that a comprehensive program including everything but onsite training is ideal, but the majority had neither the staff nor funding to do it all. They had to save their efforts for what they could do best, and what they believed to be most successful. Most did not claim to know what works best for their clients. In the absence of any national full-scale program evaluations, they rely on their own experience (the majority of the projects are 5 or 6 years old) and the experience of others, which they share through regional conferences and through the Displaced Homemakers Network.

There follow some notes on how services to displaced homemakers may be delivered most effectively, based on the observations of these experienced project directors plus the findings of a few studies[27] and year-end reports from a few States with displaced homemaker programs of their own.

Personal Counseling

Nearly all of the program directors emphasized the importance of this component; all of them offer it. The Berkeley Planning Associates study of the national demonstration displaced homemaker projects especially noted the need of displaced homemakers for restoration of a sense of self-worth and confidence building.

Peer support is almost universally considered a highly effective form of counseling. Most of the directors observed that peer support or other forms of counseling need to be continued throughout the program, in conjunction with other services such as job readiness and skills training. A very few program directors disagreed; they believed that the most urgent requirement for displaced homemakers is to find a job, after which other problems tend to take care of themselves. The majority, however, considered it essential to provide continuing emotional support.

An example of a successful program based on continuing support is the Safety in Numbers program sponsored by the Displaced Homemaker Program at the Mississippi Gulf Coast Junior College. Designed for students 25 and older, the program's classes are composed entirely of beginning adult students of similar age so they can help one another with the necessary home and school adjustments. Included in the basic curriculum are English, math, reading and study skills, and the psychology of personal adjustment.

Job Readiness

This is another essential service, provided by all 20 projects. Small, modestly funded projects may not be able to do their own job development or job matching, but they all help to prepare their inexperienced clients for the world of paid work. Offering job readiness training in a classroom format appears to be very successful. It is not only an efficient use of staff resources, but also draws on the benefits of peer support. Further, the organized instruction—having a class to go to—helps give many displaced homemakers a sense of purpose, countering feelings of helplessness and isolation.

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[27] See especially Kogan, et al., op. cit., the descriptive study of the 47-project national demonstration displaced homemaker program.

Education and Training

Most displaced homemaker centers do not offer skills training or education, but refer their clients to the appropriate educational institution. A few (5 of 20) have offered skills training for such jobs as word processor, clerk-typist, nurse's aide, and food manager, and brush-up courses for nurses and secretaries.

Referring clients to other institutions for training has not always worked well. Berkeley Planning Associates found that more than half of the projects in the national demonstration program experienced serious difficulty in getting displaced homemakers into CETA training programs, despite their own CETA sponsorship. There were two problems: CETA had few training slots not reserved for other target groups; and many displaced homemakers were confused by the red tape and delays during the CETA intake process. The red tape problem may also arise with referrals of displaced homemaker clients to larger JTPA projects, especially around questions of income-eligibility.

Project directors would like to offer more training themselves, or have more influence on design of training courses. One director mentioned the need for short-term or refresher training in clerical skills; many displaced homemakers have far too little income support to undertake a 6- or 8-month course. Scheduling of courses to meet the needs of displaced homemakers is also important. For example, the Safety in Numbers course for displaced homemakers at the Mississippi Gulf Coast Junior College offered the core curriculum in classes 2 days a week, freeing the student for family responsibilities on the remaining days.

Many project directors expressed a desire to encourage or offer more training in nontraditional fields; in fact two projects recently sponsored training courses in electronics and in plastics mold injection. Needs for remedial education were stressed; some displaced homemakers must upgrade reading and math competencies before they can enter any kind of skills training, or even look for a job.

Five projects that were able to establish on-the-job training, work experience, or career internships were impressed with their effectiveness. Short-term work experience was especially important for women who had either never had a paid job, or had not had one for years.

Job Placement

The Displaced Homemakers Network, and project directors in general, consider job placement "a top priority and ultimate goal of program service." Nonetheless, limited staff and funds make it difficult for many projects to provide all the placement services that they see as desirable.

The majority of project directors interviewed (17 out of 20) said their projects do some kind of placement work, even if only informally. Several maintain job banks and keep in close touch with local employers or employment agencies about possible openings. Only four have staff job developers, who work on turning up job openings that have not been advertised or listed. Several directors indicated the need for more staff in job development and coordination of job placement, especially for older clients. Projects that are able to get additional funding, either from Perkins Act grants or from other sources, may choose to add staff job developers or to obtain the service for their clients by contract. A number of JTPA projects have contracts with the local Employment Service (ES), under which ES staff develop jobs specifically for the project's clients. The typical displaced homemaker project does not have the funds to offer this special service to its clients.

The kind of jobs that clients of displaced homemaker projects find are varied, but on the whole are weighted toward traditionally female, generally low-paid jobs in the clerical, retail sales, and service fields. For example, a fact sheet from the State of Minnesota indicates that of the displaced homemaker program clients who are placed, 42 percent are in service jobs, 30 percent in clerical work, and 14 percent in sales. This particular group actually had better average pay than other working women in Minnesota: the median wage was $5 per hour for former program participants, compared to a median wage of $3.38 per hour for other Minnesota women. Very little other information exists on wage rates for participants in displaced homemaker programs compared to other groups. One study of a past program in Massachusetts found that wage gains achieved through the program were minimal; most clients who worked before entering the program received the minimum wage, and so did most who completed the program. Of the project directors interviewed, most reported that their clients' wages were generally low, hovering around minimum wage.

The most obvious explanation for displaced homemakers taking traditional women's jobs at low pay is that these are easy jobs to fill, with few skill requirements and frequent openings. As one director acknowledged, it is not clear that these are the right jobs for the project's clients, but at least they do get placed.

Another explanation is that many displaced homemakers seem to gravitate toward traditional jobs when asked their preferences. Few older women are interested in nontraditional jobs, and they generally reject training because they believe they will not be able to compete with younger, better-educated women even after training. In any case, displaced homemakers often have little choice. Many need a source of income immediately. Without training stipends or loans, they are forced to accept low-paid jobs with little prospect of advancement. For women at very low income levels, public assistance may be the best choice financially, although many resist going on welfare.

On the other hand, some of the placements are in a variety of nontraditional occupations. Some women have been helped to start their own businesses, sometimes unusual ones; for example, a group of women developed a cab service in an area that did not have one. One director reported that women used to heavy work at home were not afraid of competing with men in physically demanding, nontraditional occupations—for instance, one woman took a job as a UPS delivery person.

One of the best auguries for successful placement is a sympathetic employer, familiar with the needs of displaced homemakers and able to provide feedback to an inexperienced worker on her performance. Previous acquaintance with an employer through on-the-job training, work experience, or an internship often results in a permanent job.

Support Services

Many projects provide specialized workshops or counseling on matters not directly related to job search—e.g., money management, taxes, insurance, housing and mortgages, legal rights of women, health care, single parenting, even automobile repair and maintenance. Few are able to offer substantial help in the forms most needed by many displaced homemakers—child care, transportation, and financial assistance. Some women who could most benefit from training are unable to take classes without some form of financial assistance—possibly loans, if not grants. Unlike displaced workers, most displaced homemakers have no unemployment insurance. Few can rely on other family members for support.

A few project directors said they have some resources, mostly through grants and private donations, to provide limited financial assistance to their clients. Four programs offer transportation assistance; three, scholarship programs; three, limited emergency loans; two, limited training stipends; and two, child care at the displaced homemaker centers. In addition, some referred clients to local community colleges for financial aid, and to the community colleges or social service agencies for child care available to low-income women.

The Perkins Act of 1984 promises assistance in some of these areas. Under the previous Voc Ed law, child care, transportation assistance, and even training stipends in limited situations were authorized for displaced homemakers. It appears they were rarely made available, possibly because Federal Voc Ed funds for displaced homemakers were limited, and State administrators did not choose to use them in this way. With the increases in funds targeted to homemakers in the 1984 act, support services might be more feasible. The new law specifically allows funds to be used for child care and transportation assistance. It also authorizes training stipends for Voc Ed students in general (not single parents and homemakers in particular) but only in cases of "acute economic needs which cannot be met under work-study programs." The consensus so far among Sex Equity Coordinators is that little if any Voc Ed grant money will be used to provide training stipends.

JTPA is no more promising as a source of income support for displaced homemakers undertaking training or education in search of a job. In passing JTPA in 1982, Congress put limits on supportive services (e.g., child care, transportation allowances, and health care) and any form of income payment (including needs-based payments, under Title IIA, and training allowances or stipends, under Title III). Spending for these purposes, plus administrative spending, was generally limited to 30 percent of JTPA funding. Administrative expenses, in turn, were limited to 15 percent which, in effect, kept spending for income support and supportive services to no more than 15 percent. Private industry councils and JTPA program directors have generally kept a still tighter rein on supportive services and income payments than the law requires. In the JTPA 1984 program year (June 1984-July 1985), spending for supportive services and needs-based payments in Title IIA was 11 percent, and for similar services in Title III, 7 percent. Nothing is known of how much of these payments went to displaced homemakers, but since JTPA spending overall for this group is limited, the amount was certainly very small.

A possible source of income for displaced homemakers during education or training is one of the Federal aid programs for postsecondary students. As chapter 7 discusses, these programs are designed primarily for financially dependent young people, not for adults—even low-income adults. Some changes that have been proposed in the student aid programs (discussed in chs. 2 and 7) might make this source of income more easily accessible to displaced homemakers. However, the competition for student aid is extremely keen; whatever goes to a displaced homemaker would be subtracted from the pool available to young students (unless, as seems unlikely, the program were enlarged).

Another possibility for some displaced homemakers is part-time studies at night. The Perkins Act offers funds to allow scheduling of vocational education courses to make them more accessible to single parents and homemakers. Night studies may be a useful option for some, especially those without young children at home. On-the-job training, even though it often does not offer genuine transferable training but rather is a placement device (see ch. 6), may still be very useful to some displaced homemakers.

The problem of income support for people who need training to get a decent job with chances of advancement is not an easy one. There were abuses under CETA, with some people signing up for courses mainly for the purpose of collecting training allowances. Yet the dilemma of a woman who has no source of support but what she can earn, yet with too little preparation for work to get better than a marginal job, is a painful one. Many of these women cannot undertake the triple job of earning a living, caring for a child, and training for a better job. It may be in the interest of society, as well as the personal interest of women such as these to make use of programs which already exist for income support of serious adult students, or to develop ones which fit their needs.

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Office of Technology Assessment

The Office of Technology Assessment (OTA) was created in 1972 as an analytical arm of Congress. OTA's basic function is to help legislative policymakers anticipate and plan for the consequences of technological changes and to examine the many ways, expected and unexpected, in which technology affects people's lives. The assessment of technology calls for exploration of the physical, biological, economic, social, and political impacts that can result from applications of scientific knowledge. OTA provides Congress with independent and timely information about the potential effects—both beneficial and harmful—of technological applications.

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